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VII

Teaching Arithmetic

WALTER H. YOUNG

IN teaching arithmetic three different aims should be kept in view: to develop the idea or concept of quantity, to combine numbers with speed and accuracy, and to solve problems. The first cultivates, not perception merely, but the judgment also, by showing the relations between objects, visualizing them and comparing them one with another. The second serves only to furnish the pupil with the tools with which to work; while the real value of arithmetic lies in the solution of problems, the power to follow the various steps involved, and to reason out the method of solving.

Such, then, are the aims to be kept constantly in mind. The attainment of them rests largely with the teacher. No matter how excellent the method, in the hands of a teacher who is incompetent or not interested in the subject, unsatisfactory results are bound to follow. The successful operation of any method depends, therefore, to a considerable extent upon the teacher. Yet there is need of something more than a knowledge of the subject-matter and the method to be employed. Enthusiasm and interest on the part of the teacher beget like qualities in the pupils.

The arithmetic recitation should not be dreaded as a period of drudgery; it should be looked forward to with joy and eagerness. Oral work and the problems of the text-book should constitute the daily routine; but both teacher and pupils should be on the alert for new and live problems; the problems of the grocer, the carpenter, the merchant, the farmer. In this way the subject becomes superior to the text-book; real, not book, knowledge is acquired; and the principles of arithmetic become vital factors in the lives of the children.

Before going further let me mention a few pitfalls to be avoided. Many teachers make the grievous mistake of always attempting to teach the "why" to immature minds, instead of emphasizing the mechanical processes. It is not necessary to give a mathematical demonstration of the reason for inverting the divisor when dividing one fraction by another. Teach the process so thoroughly, and drill on it so repeatedly, that the pupil will never make a mistake. Let him invert and multiply without knowing the reason why. On the other hand, several processes, as addition and subtraction of denominate numbers, can be worked out with the pupils in such a way as to make it clear to the most stupid what is done and why it is done.

Another stumbling block, strange as it may seem, is simple multiplication. Many teachers insist that the multiplicand and the product must be of the same denomination. If the answer is obtained in any other way it is marked wrong. I have seen teachers in two of our New England States mark as incorrect examples similar to the following: Bought 26 dozens of eggs at 30 cents a dozen, when the pupil used 30 cents in the position in which the multiplier is usually placed. By giving as a reason that 26 should be used as multiplier, the teacher had taught unnecessary and untenable theory, confused nearly all her pupils, and forced them to do what to the average business man is the height of folly and ridiculous in the extreme. On this point David Eugene Smith says: "As to writing the statement of multiplication the old English form was $\$3 \times 2 = \$6$. At present the tendency is decidedly in favor of writing and reading the multiplier first, as $2 \times \$3 = \$6$. This is much less confusing to children, and is used by our best writers and teachers."

Then again, with regard to the multiplication of fractions, say $\frac{1}{2}$ of $\frac{1}{3}$. Instead of multiplying as they stand, some teachers insist that the example be rewritten: $\frac{1}{2}$ of $\frac{1}{3} = \frac{1}{3} \times \frac{1}{2} = \frac{1}{6}$. Such questionable formalism should be very carefully avoided.

In measurements, also, as in finding the area of a rectangle when the length of its sides are given, the teacher is not to attempt a geometrical demonstration; simply show by means of blocks that the base contains the unit of measure so many times, that the other side or altitude is the same length as the number of rows of blocks, and that the total number of blocks is the same as the area of the rectangle, the unit of measurement being, of course, a unit of square measure. Probably as good a way as any of writing the statement is, in the case of a rectangle, $7''$ by $4''$ is 7×4 square inches $= 28$ square inches.

But to return to the positive side of the discussion. Equipment for teaching arithmetic is just as essential, though not as extensive, as apparatus for teaching physics. The old days of slate, pencil and text-book only have passed away; methods have changed in arithmetic as well as in science, whenever possible objects are used to illustrate mathematical truths. Therefore every school should be equipped with the necessities for objective teaching, such as a good ruler for each pupil, blocks and cubes, weights and measures, splints in bundles, several chromatic number charts, spheres, pyramids, cylinders, good blackboards, and tablets such as are required for Bigelow and Boyden's Primary Number.

One of the most important factors in teaching arithmetic is oral work. This is useful in securing accuracy and rapidity of calculation, as well as in solving many mental problems. The best schools give to oral work about fifty per cent of the time allotted to arithmetic. In these exercises, more than in any other, it is essential that the teacher should have the eyes of every pupil fixed upon her. She must secure the closest attention. But right here let me caution the teacher not to call upon the same pupil too frequently, and not always upon the first to finish. The mentally slow has his rights, as well as the lightning calculator. The truck horse is just as

necessary as the race horse, and should be just as carefully fed and groomed.

Oral work naturally divides itself into two parts:—

1. Abstract work: The teacher dictates an exercise something like this: $2+5+8+7+4+6$; or for the higher grades occasionally the following may be profitable: $18+14—16+27+12$, giving out the numbers distinctly, so that the pupils can easily understand and follow. She may vary these with the operations of fractions. Now this work demands the closest of attention, is very fatiguing, and should never last more than five minutes at each recitation.

Another exercise is to have a pupil go to the blackboard, write in column three or more numbers of two figures, allow the class to look at them for an instant, then cover the numbers with a sheet of paper and call for the sum.

Still another pleasing exercise for reviewing the tables of denominate numbers is to begin with one of the tables, say dry measure, have each pupil in a row recite one part of the table, then pass on to another table, say time, then liquid measure, and so on, until all the tables have been gone through. In this, however, the teacher should be careful to vary both the tables and the order of rows, so as not to call upon the same pupils repeatedly for the same thing.

2. Problems: Equally important is the matter of oral problems. These should be suited to the age of the pupil, ranging from the simple problems of the first grade to problems of excavation and grading in the ninth grade. Where the actual work is too difficult to be performed without the aid of pencil and paper, the principles and processes involved can be very carefully discussed.

Oral work affords a splendid opportunity for the discussion and use of short methods after the regular method has been thoroughly mastered and the way thus prepared for their introduction. Some of these methods commend themselves for nearly every grade, although the teacher should be careful not to over-emphasize the short methods. Let us consider a few of them. In the addition of fractions, say $\frac{1}{2}+\frac{1}{3}$, multiply the denominators for a new denominator, and add the denominators

for a new numerator. Or, if we have $\frac{3}{5}+\frac{2}{7}$, we see at once that the denominator is 35, and the numerator $21+10$. Suppose we have 9.5×8.5; $9\times 8=72$, $(9+8).5=8.5$ and $.5\times.5=.25$. Adding we have 80.75. If we are to multiply by $12\frac{1}{2}$, it is much simpler to add two ciphers and divide by 8. The same principle holds true in multiplying by $16\frac{2}{3}$, 25, and several other numbers. Suppose we have the following example: Bought 7,500 pounds of butter at 28 cents per pound. Now $7{,}500\times 28$ cents $=2{,}800\times 75$ cents, or $\frac{3}{4}$ of \$2,800. The judicious teacher should certainly make use of some short methods, for they are of great assistance in oral work, and are valuable in later life, especially when pencil and paper are not at hand.

In solving problems great latitude should be allowed. The teacher should encourage the pupil to find as many solutions as possible, thereby developing thought-power on the part of the child. Discrimination, however, should be used. Which way is the shortest? Which method is most in accord with the order of transactions? Which will you be most likely to remember? These and kindred questions should be asked when several solutions are given.

Wherever possible cancellation should be used, for it shortens the work and saves the time of teacher and pupil.

The quality of teaching done in the primary grades is all-important, determining in a large measure the character of what follows. This work must be thoroughly mastered; the child must perform the ordinary numerical combinations with speed and accuracy; and he must be able to solve such simple problems as would interest a child of his age and understanding. These results can be secured by working along three definite lines.

1. The idea of quantity: It is not enough that at the beginning of his education a pupil should talk glibly about inches, pints, pounds, merely as words; he must do more than this; he must both perceive and image objects which have the dimensions of inches, pints, and the weight of pounds, beginning first with linear measure, then passing on to surface measure, then finally to the measure of solids. At the same time he is

to be taught to recognize the pint, quart and gallon in liquid measure by actually measuring sand or water. His sense of weight should also be trained by using the balances in finding the weight of different objects. In all these exercises the pupil should describe accurately each operation as he performs it.

2. Abstract work: This is rather overdone in the first two grades in many schools. The tendency now is to develop the idea of quantity along with the idea of number. To secure this the limits are shortened. No sacrifice of quality results; rather a gain, for the abstract work is even more accurately and speedily performed. But beginning with the third grade the pupil should have constant drill in numbers of two, three and four places. He should be taught to add in columns, placing his sum under each column until he has checked his work and proved it correct.

3. Problems: Problems may be introduced almost as soon as the pupil is able to count; indeed, they may be used in assisting the pupil to count. Of course they must be simple, and suited to the mind of the child. The thoughtful teacher will have books of problems at hand, as well as invent many simple ones herself. The pamphlets published by the city of Cleveland are very good and inexpensive, and at the same time require thought. "Encourage the pupils to make problems, using the combinations already learned. If the language of a problem is found to give particular difficulty, several additional problems should be dictated. Train pupils to look for the thought in a problem, to picture the situation depicted, and to determine what effect this has upon the quantities involved. Never tell a pupil he should add or subtract in solving a problem, but lead him to see how the quantities are related to one another by the nature of the transaction."

Above all, teach principles rather than long and tedious puzzles. There is little pedagogical value, for instance, in a problem like this: How many inches in 149 miles, 74 rods, 3 yards, 2 feet and 7 inches? While we may occasionally place such a problem before the pupil, as a steady diet it kills interest and takes time which should be given to something more valuable.

Another difficulty which primary pupils encounter is "carrying" in addition, and "borrowing" in subtraction. These can of course be taught by rule, but the inductive method should here, as in every other subject, precede the formal statement. A very excellent way is to use sticks or splints in bundles of ten, and thus actually add or subtract, or the teacher may picture on the board objects by tens or units. Children enjoy this kind of work, and look forward to it eagerly. Another way, still more pleasing to the pupil, is to add and subtract by tens and units with the aid of a chromatic numerical frame. The principle of this is the same as the method of representing objects on the board, and much more rapid.

In teaching common fractions it is universally admitted that the subject should be approached concretely. An apple or a pear may be used, dividing it first into halves, then dividing one of the halves into two equal parts. Right here comes the first lesson in addition of fractions, by placing a half and a fourth together and showing that we cannot name the sum until the other half is divided. Now it is not enough that the teacher should go through this illustration once with the class; the operation should be performed and carefully described by each pupil. Subtraction can be taught at the time by taking one fourth from three fourths. From this the teacher can readily pass to multiplication as a shortened form of addition, then to division as a process of dividing into parts.

It is always well to approach a subject from as many avenues as possible, hence the value of a second method, which is to have the pupil use paper and ruler, with the foot as unit of measure. The teacher asks her class questions similar to the following: How many inches in a foot? Divide a foot into two equal parts; what is each part called? Into three equal parts; what do you name each part? This can be continued until the pupil is familiar with halves, thirds, fourths and sixths. Addition is the next step, and subtraction at the same time, for they can be taught together much easier than separately. This use of the ruler is of great help in showing the necessity of changing to a common denominator before adding or sub-

tracting fractions. Especially is it valuable in multiplying a fraction by a fraction. To illustrate: A pupil marks off a line one half a foot long, then divides the line into three equal parts; how long is one part? What part of a foot is it? Show the relation between $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{6}$, and formulate the rule. For division, find out how many times one sixth of a foot is contained in one half a foot, write the numbers on the board and formulate the rule after showing the relation between the numbers. Two points especially should be emphasized: 1. Repeat the operation many times with slight variations; have every child do it, and then state clearly what he has done, concluding with a statement of the rule. 2. Be sure to have the operations written on the board where all can plainly see them. In this way the ear, eye and hand are all trained.

The development of the idea of quantity in the primary grades has prepared the way for an appreciative study of measurements. The pupil thus trained visualizes the object which he is measuring. His mind forms an image of the particular coal bin, or plot of ground, or pile of lumber. Given the dimensions, he readily finds the area or cubical contents, for he works not by blind formula, but from a real conception of the object.

We have suggested some things to be measured, and the resourceful teacher will think of many others. This kind of work is very practical. For example, have the pupil measure the coal bin at home, inquire of the coal dealer how many cubic feet of coal in a ton, and find out how many tons of coal the bin will hold. Again, have the boys find the cost of grading a plot of ground. This requires careful measurement, the amount of earth in a load and the cost of cartage and labor. It is an excellent plan to get from a contractor the plans of a house, have the pupils find the amount of earth to be excavated and the cost of excavation, material and labor for the foundation, amount of lumber, shingles, lead, paint, labor, etc., and cost of the same at current prices.

We pass now to the subject of simple interest. In treating this topic I wish to give two illustrative examples exactly as they were solved by the pupil.

1. Interest of $9,500 for 3 years, 6 months, 17 days at 7 per cent.

	$9,500	42 months, 17 days
.20 =	1,900	.21 + .00¼ + .000⅛
.01 =	95	
.00¼ =	23.75	
.000⅛ =	3.166	
	6)2,021.916 at 6 %	
	336.986 at 1 %	
	$2,358.902 at 7 % = Answer.	

2. Amount of $562.75 from August 15, 1906, to December 29, 1908, at 7 per cent.

	$562.75		2 years, 4 months, 14 days
.10 =	56.2750		28 months + 14 days, or (12 + 2) days
.04 =	22.5100		14 + .002 + .000⅛
.002 =	1.1255		
.000⅛ =	.18758		
	6)80.09808 at 6 %	$562.75	
	13.34968 at 1 %	93.447	
	93.44774 at 7 %	$656.197 = Answer.	

The above represents the actual work required to solve the two problems. They are important, not merely for the method used, but especially to show what it is possible to do in training pupils, for, to solve problems of this kind according to the above method certainly does require careful drill, a keen insight into numerical combinations, and a thorough knowledge of decimal fractions—aims which every teacher should do her best to attain.

Our purpose in the preceding pages has been to describe as accurately as possible some of the methods now in use, in such a way as to be helpful to the average teacher, recognizing that the practical rather than the theoretical is of greater interest to the general reader.

Progress of Pupils through Elementary and High Schools

SUPERINTENDENT J. M. GREENWOOD, KANSAS CITY, MISSOURI

IN some cities the question has been asked, how long does it take pupils to go through the elementary schools and be admitted to high school? The elementary courses of study in nearly all of the cities of the United States are mapped out on an eight year basis, in some instances nine years, and, in a few, ten years; but on the other hand, in a few cities, notably Kansas City, a seven year course is in operation. All discussion of the time element ought to assume that pupils are regular in attendance, are of average intelligence, and are capable of doing a year's work in ten school months, or two hundred school days annually, after deducting holidays. The question, however clearly stated, cannot be treated arithmetically, except approximately, owing to sickness of pupils, removal of pupils from one school to another, changes of teachers, and other disturbing factors that tend to break up regular and uniform progress for a series of years in school work. Another factor that seriously interferes with the progress of a considerable number of pupils in many systems of schools is the yearly interval between classes and grades, so that unless a pupil does a full year's work each year, he is put back and made to do the new year's work where he started in the year before.

So far as the writer knows, the statistics included in this paper are on a different basis and from a different view-point from any others published in this country. The object I have had in view is to deal with individual cases, including the history of 1,517 pupils that completed the elementary course of study in the Kansas City schools in June, 1908, and the school history of 440 pupils who graduated from the high schools in June, 1908, including the time each graduate had spent in both elementary and high school work.

A further differentiation among the elementary pupils is

made owing to the fact that of 1,517 reporting, 325 had received kindergarten instruction under what should be regarded as an exceptional condition, namely, that no pupil can be enrolled in the public schools of Missouri before its sixth birthday, and these pupils had received such instruction after six. It was contended by some persons in this city that admitting children to kindergarten work after they were six years of age would enable them to complete the regular school work in a less number of years than if they did not take it. The data submitted will cast some light on this question, and may afford a valid basis for estimating the value of kindergarten instruction of children over six years of age in advancing them or retarding them in their regular studies through the elementary course, as compared with the progress of children who at six and beyond take up formal school work. It is very generally admitted that children after the sixth year have passed beyond the kindergarten age, it being fixed at practically from four and one half to six. One thing is certainly evident, that children six years of age or older taking kindergarten work before entering upon the formal stage of regular school work should pursue a greatly modified kindergarten course, perhaps intermediate between kindergarten and regular work, in order to avoid loss of time in getting through the elementary course. The kindergarten work here is so much added to the regular time for completing the elementary course.

COMPLETING THE ELEMENTARY COURSE

The total number of pupils completing the elementary course was 1,581, but 64 did not furnish reports. Seven years before the whole number of pupils enrolled during the entire year in the first grade was 6,137, and out of this enrollment 1,581 pupils were promoted seven years later as being ready for high school work; or 25.76 per cent remained in school, and at least 75 per cent of these will enter high school in September, 1908.

The information from 1,517 of these pupils was procured on a specified day at the respective schools in which they were registered, and the items tabulated and embodied in this report summarize the individual school history of each pupil whose report was submitted.

ANNUAL REPORT OF THE ELEMENTARY SCHOOLS

FOR YEAR ENDING JUNE 12, 1908

TABLE SHOWING AGES IN YEARS AND MONTHS OF THE MEMBERS OF THE GRADUATING CLASSES WHEN THEY ARE SUPPOSED TO ENTER HIGH SCHOOL

AGE	M.	F.	AGE	M.	F.	AGE	M.	F.	AGE	M.	F.	AGE	M.	F.	AGE	M.	F.	AGE	M.	F.	AGE	M.	F.	AGE	M.	F.
Yrs. Mos.			Yrs. Mos.			Yrs. Mos.			Yrs. Mos.			Yrs. Mos.			Yrs. Mos.			Yrs. Mos.			Yrs. Mos.			Yrs. Mos.		
11 0			12 0		1	13 0	5	9	14 0	26	32	15 0	16	29	16 0	15	19	17 0	2	6	18 0	1	3	19 0		
1			1	1		1	4	7	1	20	27	1	12	22	1	19	15	1	4	4	1	2	1	1		
2			2	1		2	8	7	2	15	24	2	16	29	2	16	19	2	3		2	1		2		1
3			3			3	5	11	3	18	22	3	14	26	3	9	11	3	4	3	3			3		
4			4			4	6	8	4	19	24	4	12	36	4	9	11	4	1	6	4			4		
5			5	2	1	5	7	7	5	21	26	5	15	24	5	9	6	5	2	2	5			5	1	
6			6			6	10	10	6	21	14	6	14	22	6	4	11	6	2	2	6			6		
7			7		3	7	8	10	7	14	23	7	18	25	7	4	8	7	2	3	7			7		
8		1	8	1	1	8	7	10	8	17	28	8	19	19	8	6	6	8	3	2	8	1		8		
9			9	1	2	9	8	11	9	26	23	9	28	25	9	5	6	9	3		9			9		
10			10	2	2	10	13	17	10	17	17	10	17	20	10	8	5	10		1	10		2	10		
11	1		11	3	5	11	11	23	11	18	29	11	17	22	11	10	8	11	2	2	11		1	11	1	
Totals,	1	1		11	15		92	130		232	289		198	299		114	125		28	31		5	7		2	1
Total,	2			26			222			521			497			239			59			12			3	

Total, all ages, { Males, 682 / Females, 899

Grand Total, 1,581

As a background for this investigation, the preceding table will put the matter in a clearer light in regard to the ages of these pupils in years and months at the date they would enter high school.

Of the records of the 1,517 elementary pupils reporting who completed that course, and would be admitted unconditionally to the high schools, 1,192 had not attended kindergarten, and 325 had received more or less instruction in kindergarten work. The time required for the non-kindergarten pupils to complete the prescribed course is presented in the subjoined diagram :—

Number of Pupils.	Time in Years.
101	Less than seven years
524	Seven years
34	Seven and one-half years
373	Eight years
10	Eight and one-half years
119	Nine years
31	Nine and one-half years
Total, 1,192	

TIME OF KINDERGARTEN PUPILS

Number of Pupils.	Time in Kindergarten.	Time in Elementary Course.
21	Less than six months	Less than seven years
4	Six months	" "
10	Nine months	" "
5	More than nine months	" "
Total, 40		Less than seven years

Number of Pupils.	Time in Kindergarten.	Time in Elementary Course.
18	Less than six months	Seven years
17	Six months	"
71	Nine months	"
27	More than nine months	"
Total, 133		Seven years

Number of Pupils.	Time in Kindergarten.	Time in Elementary Course.
2	Less than six months	Seven and one-half years
6	Six months	" "
3	Nine months	" "
6	More than nine months	" "
Total, 17		Seven and one-half years

Number of Pupils.	Time in Kindergarten.	Time in Elementary Course.
18	Less than six months	Eight years
12	Six months	"
43	Nine months	"
19	More than nine months	"
Total, 92		Eight years

Number of Pupils.	Time in Kindergarten.	Time in Elementary Course.
1	Less than six months	Eight and one-half years
2	Six months	" "
1	Nine months	" "
1	More than nine months	" "
Total, 5		Eight and one-half years

Number of Pupils.	Time in Kindergarten.	Time in Elementary Course.
6	Less than six months	Nine years
3	Six months	"
15	Nine months	"
5	More than nine months	"
Total, 29		Nine years

Number of Pupils.	Time in Kindergarten.	Time in Elementary Course.
1	Six months	More than nine years
2	Nine months	" "
6	More than nine months	" "
Total, 9		More than nine years

Total Number of Pupils, 325

Expressing these two different groups in percentages, and neglecting the time spent in kindergarten work we have the following striking results:—

Number of Pupils.		Time in Elementary Course.	Per Cent.
Non-Kindergarten	101	Less than seven years	8.47
Kindergarten	40	" "	12.3
Non-Kindergarten	524	Seven years	44.
Kindergarten	133	"	40.9
Non-Kindergarten	34	Seven and one-half years	3.
Kindergarten	17	" "	5.4
Non-Kindergarten	373	Eight years	31.3
Kindergarten	92	"	28.3
Non-Kindergarten	10	Eight and one-half years	.84
Kindergarten	5	" "	1.5
Non-Kindergarten	119	Nine years	10.
Kindergarten	29	"	8.9
Non-Kindergarten	31	More than nine years	2.6
Kindergarten	9	" "	2.7

Of the 40 pupils that took kindergarten work and completed the elementary course in seven years of the time spent in kindergarten, 21 were in kindergarten between three and six months, 4 in it six months, 10 in it nine months, and 5 more than nine months. Practically, it took these 40 pupils from a half a year to a full year extra so far as the time element is involved, to do the same work as the non-kindergarten pupils; and so on in each of the other groups.

HOW TIME WAS LOST IN THE ELEMENTARY SCHOOL

The investigation thus far shows that 141 pupils completed the elementary course in less than seven years, 657 in seven years, 51 in seven and one-half years, 465 in eight years, 15 in eight and one-half years, 148 in nine years, and 40 in more than nine years. Since 798 of these pupils completed the elementary course in seven years and less than seven years, it is necessary to ascertain why the others required more than seven years. Each case was carefully investigated and then placed in one of the following groups:—

1.	Time lost on account of sickness	288
2.	" " changing schools	193
3.	" " reviewing work	143
4.	" " having to work	12
5.	" " absence	40
6.	" " weak eyes	3
7.	" " defective speech	2
8.	" " lack of interest in student	15
9.	" " no reason assigned	35
	Total	731

The reports from the pupils further show that 543 lost time in the schools of Kansas City, and that 188 lost time in schools outside of Kansas City.

TIME IN ELEMENTARY AND IN HIGH SCHOOL

What has preceded relates to the pupils enrolled in the elementary schools, and who had completed that course of study. The following discussion includes the statistical history of 440 boys and girls in both the elementary and high school courses. These graduates consisted of 149 males and 291 females.

It is interesting to learn that of these 440 pupils graduating in June from the four Kansas City high schools 90 completed the elementary course of study in less than seven years, 238 completed it in seven years, 8 in seven and one-half years, 92 in eight years, 3 in eight and one-half years, and 9 in nine years. Those who required more than the allotted time fell behind in their classes on account of the following reasons: Sickness—45, nine boys and thirty-six girls; changing schools—25, fourteen boys and eleven girls; had to review work—16, seven boys and nine girls. It should be noted that 428 of these pupils completed the entire elementary course from less than seven to eight years, leaving only 12 pupils who required more than eight years to do this work. The reports also revealed the fact that 89 of these pupils had lost more or less time during their attendance in the elementary schools.

Their high school records show the following facts, to wit: that 15 pupils completed the high school course of study in three and one-half years, 324 in four years, and 101 required more than four years, but none exceeded five years. In our high schools, a considerable number of pupils, not to be hurried, take five years to complete a high school course. Of those who took more than four years but not five years, 68 had not attended kindergarten, 19 had attended from six to nine months, and 16 had attended more than nine months. Of those who took more than the allotted time, 45 lost time on account of sickness—ten boys and thirty-five girls; 25 lost time on account of changing high schools; 13 lost time by entering high school at the middle of the year; and the remaining 18 assigned various reasons.

If there could be a published statement of the progress of pupils in different cities of the country along the lines included in this investigation, it would have a tendency to throw considerable light on some obscure points in city school work, and, in my judgment, would be the means of causing superintendents and principals to look more closely into the organization and practical workings of their schools.

Outlines of World Leaders

V

Leonardo da Vinci: The Universal Genius of the Renaissance

ARTHUR DEERIN CALL, A.M., HARTFORD, CONNECTICUT

I. THE RENAISSANCE IN ITALY AND THE MEETING OF TWO IDEALS

Our modern world the product of two conflicting ideals, Greek and Christian. The Greek developed the sentient ideal to a perfect completeness. The Christian ideal in complete antithesis to the Greek. The meeting of these two interpretations with a marked emphasis in the fourteenth and fifteenth centuries. Illustrations among the monks and troubadours, the priests and students of the classics, in Fra Angelico and Fra Lippo Lippi, Savonarola and Boccaccio. The Italian Renaissance an inexplicable movement toward a self-conscious freedom in the human spirit. Its genesis in the life and influence of Saint Francis.

II. THE BIRTH AT VINCI AND LIFE AT FLORENCE

Leonardo born in Vinci on the Arno midway between Florence and Pisa, 1452. His family history one of little promise. The early training unknown. The father's business interests take the boy to Florence. The conditions in Florence at that time. A pupil in the studio of Andrea del Verocchio, 1466; the results of this experience. Signs of precocious versatility. Companionship with Perugino, Lorenzo di Andrea Credi, possibly with Sandro Botticelli. Member of the Florentine Guild of Painters, 1472.

His first dated landscape—"The Day of S. Mary of the Snow," August 2, 1473. Verocchio's "The Baptism of Christ" with its angels by Leonardo. The legend of the "Shield." The cartoon of "The Fall." Early sculptures now lost. In the service of Lorenzo di Medici by 1477. The unfinished altar piece for the chapel of St. Bernard. Owner of a house in Florence, 1481. The commission at Scopeto and the "Adoration of the Magi." The beginning of his innovations.

III. IN THE SERVICE OF LODOVICO SFORZA AT MILAN

Went to Milan about 1482. The story of the lute. His strange letter. The variety of his services. The four unknown years. The equestrian statue. The beginning of his literary work at thirty-seven years of age, five thousand manuscript pages, thirty years in the writing. "Treatise on the Human Figure" started in 1489. His scientific spirit. The "Virgin of the Rocks," now in the Louvre, about 1490; the replica in the National Gallery. "The Virgin and Saint Anne," a cartoon in the Royal Academy. Model of the equestrian statue exhibited 1493. "The Last Supper," painted for Dominican friars in the refectory of St. Maria delle Grazie, begun 1495 and completed 1498. The importance of this work. Leonardo's influence upon the art of Lombardy.

IV. THE TRAVELS THROUGH ITALY

Sixteen years of travels in Italy. In Venice (1500), Florence (1501), engineer to Cæsar Borgia (1502), in Urbino, Pesaro, Rimini, etc.; Florence (1503), plans for a canal between Florence and Pisa; in competition with Angelo (1504), "The Battle of Anghiari." In Rome (1514). His various studies. The "Mona Lisa," the greatest portrait ever painted.

V. WITH THE FRENCH KING TO FRANCE

With Francis I in Northern Italy (1515). To France, 1516, at the Chateau Cloux near Amboise. Plans for a palace; for a canal. The blue-robed "Madonna and Child with Anne," now in the Louvre.

Leonardo's will. His death May 2, 1519. His supremacy in various works, particularly as a writer.

VI. CONCLUSION

Leonardo is by common consent the pioneer and intellectual apogee of the high Renaissance in Italy. He was first to explain the principles of light and shade, first to found all art upon scientific principles. He is still first as the master of composition, as he is first in the power to reveal behind the human face limitless thought and emotion. He was first to

reveal the unity in nature. He is still first in the many-sidedness of interests and achievements. This is not fulsome praise. He was eminent as a mechanic, a mathematician, a musician, an optician, a manufacturer, an anatomist, a zoologist, a physiologist, an astronomer, a geographer, a teacher, an athlete, a humorist, a chemist, an inventor, an engineer, an architect, a sculptor, a painter, and as an author. He anticipated Bacon, Copernicus, Galileo and Descarte. He ranks as the incarnation of the spirit of the Renaissance, the man of vision, centuries ahead of his time, questioning the Infinite, and forever questioning.

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A Theory for Gender in German

KATHARINE A. KOCH, HIGH SCHOOL, DENVER, COLORADO

THERE is no topic in the realm of German grammar which has been left untouched to the extent as has the difficult one of gender. There are memory devices by the score, that cover the field of nouns and verbs; there are verses that rob the preposition of its terrors. Grammatical analogies with which it is possible to fill in every seeming hiatus, gradually formulate themselves in the mind of the vigilant teacher, and make a working knowledge of the language a possible thing, with the one above-mentioned salient exception, gender.

The average teacher attempts to circumvent this difficulty usually by the citation of other instances—"there are irregularities in other languages too—witness the arbitrary nature of English spelling, etc." The effect on the pupil cannot but be disheartening. He knows very well from the beginning that the memory tax required of him by his teacher is merely a conventional demand on her part, *i. e.*, that it is practically impossible to memorize the article with every noun in his vocabulary. The nouns are not beyond him—many of them, in the best grammars, are cognates, and recognizable for that reason—to the real student many others, those that are radically different, have the interest of obscure philological origin attaching to them; here and there a bright girl or boy goes far enough, for instance, to wonder why the word "potato" is in German *kartoffel*—entirely different in form, a mere putting together of purely unknown syllables. This attitude of wonder, of curious observation on the part of the pupil, amounting practically to the elements of research, goes far toward fixing the unfamiliar syllables in his mind. But when his teacher demands of him that he shall also be able to affix thereto the proper article—"Aye, there's the rub!" She has told him he must regard noun and article as practically inseparable; but, later, when he has been forced to use the noun and article in the different

combinations that are brought about by cases; as when, for instance, he has had to put *der* before a feminine noun in the dative case—what is to efface this latter "pictorial effect," as one grammarian calls it—the effect that must remain before his mind's eye always, the effect of the noun and its proper article, "now and forever, one and inseparable," and substitute the nominative of the same article as occasion requires? The only vindication of this grammarian's theory is that if the thing is good, more of it must be better, and that the pupil will find it to his advantage not to have one "pictorial effect," but an infinite number of them, based on the types of the sixteen definite articles as they occur in the declensions.

Now, it is needless to add that the pupil will not do this, chiefly because it is the impossible that is required of him. He is always eager to adopt any device which makes for the simplifying of intricate situations in grammar and kindred subjects, but his avidity vanishes when, as in the above-mentioned case, it is a solution of the difficulty that "fails to liquefy," as Mark Twain says.

The article, then, is clearly beyond him, out of his ken, impossible to his imagination, except as an arbitrary nuisance, a thing, up to this point, that he cannot get at by fair means or foul, rhyme or reason, logic or memory. What follows? The first comforting assurance comes from knowing that the Aristotelian doctrine of recognition of an evil, as the first step to reform, holds good here as in all other cases. It would seem that up to this point, too little stress has been laid by grammarians on the almost overwhelming difficulty of this phase of grammar. And now for a solution, or an approximate solution. There are three ways, then, of determining genders. The first two are quite simple; it is with the last of these that we are to concern ourselves chiefly.

In the first place, about half the nouns in the language have distinctive endings, which in themselves determine the gender of the noun. The pupil must learn these endings; he must know that *chen* and *lein* are always neuter; he must also learn to regard the ending *in* as having a feminine look about it, just as *ess* has in English. A few days—rather a few minutes'

drill each day for a few days, will make the following categories his own.

Masculine	Feminine	Neuter
ig	ei	chen
ich	ie	lein
ling	heit	sal
m	keit	sel
n	schaft	tunc
	in	
	ung	

Now, he must be taught that *ig*, *ich*, etc., have a strong masculine sound; that *ie*, *in*, *ung*, etc., have a weak, feminine sound, the voice dropping laxly on the nasals; *ie* will look feminine to him at first blush, so will *in*; and with his knowledge of these two, the rest of the feminine category will suggest themselves by association of sound. In other words, if he has been reasonably faithful, and knows two words of his category, the rest will supply themselves as do the sequential lines of a rhyme. The same is true of the neuter. If he knows *chen* and *lein*, and sees somewhere, whether on the page or in his mind's eye, a word ending in *sal*, for instance, it insinuates itself before the third ending in the neuter list. Now this is the only "pictorial effect" that I think may be depended on, the only one that the pupil will himself be inclined to use.

The second means of determining gender is perhaps the least advisable one, as it is the most misleading from the grammatical standpoint, the determining of "sex-gender." The student of German knows that while this is comparatively easy when it concerns masculines and feminines, or rather the *Geschlechts objekte*, or sex objects for which these terms stand, it is practically impossible when it comes to inanimate objects, and those without any hint of sex about them. Why the German should say *der Thee* for tea, *die Milch* and *die Butter* for milk and butter, and *die Schlacht* for battle, *der See* and *die Luft* for sea (lake) and air, seems to the superficial observer as only to be accounted for by referring it to the tendency which the language exhibits toward being as complex as it possibly may, in the shadow of its many iron-bound rules.

We have come then, by easy stages, to the third means of determining gender—and one which, like all the rest, has its many disadvantages. But it is a step in the direction of simplifying nevertheless.

Take the word *der Thee* for instance. A boy has failed on the article, has called it *die Thee*, or more probable *das Thee*. He has been corrected, and in some cases reproved for not having made it his business to get article and noun together. In extreme instances he has been told, "better miss the noun altogether than learn it with the wrong article." Perhaps at this juncture some pupil will put a question. If he doesn't, the question is at least germinally present in all minds. "Why *der Thee?*" "Why not *die Thee* or *das Thee?*" Manifestly, this attitude of question becomes the wise teacher's opportunity. "Let us see why we call it *der Thee*," she says. "Who can give me any reason why *Thee* should be masculine? There is no ending to help us out—no sex idea, why then do we say *der Thee?*" One pupil says, "Because it is strong." The teacher says "Why is it *die Milch?*" "Because it is white," says one pupil. "Because it is sweet," says another. For the word *Strasse*, a lively girl supplied the information that it is "run over by people," and the more fantastic and whimsical the reasons given the more likely is it that the gender will remain fixed in the mind of the class. A boy misses the gender of *Uhr*—he has probably made it a neuter—it is an inanimate thing, and of the neuter gender in English. His conservative traditions in the matter of gender, acquired through two or three years in the grammar or graded schools, revolt at the idea of attributing the dignity of any other article than *das* to the word.

When he learns he must say *die* and not *das*, let him answer his own question. The answers in many cases will be so original as to add the interest of amusement to this otherwise dry phase. "Because it is always wound up," says one mischievous boy, with a twinkle, "or always going' adds another, and *der gleichen mehr*. The theories have won for each contribution an easy laugh, perhaps, and it is safe to say that no one in the class will call it *der Uhr* or *das Uhr* again.

There will be some difficulty in getting the class to give intrinsic attributes. Take the word coat, for example, *der Rock*, eight out of ten pupils gave the same reason, "because it belongs chiefly to men's apparel." The ninth pupil supplied the fact, "usually made of coarser material," the tenth, "it protects the body, as man is the protector of society."

An interesting lesson, and one for which the pupils have asked again and again, may be made of entire vocabularies in this way. Pick out the nouns, or rather have the pupils do this, and have them read their answers. By writing on the board the noun with its proper article before the lesson of gender-theory begins, we have one "pictorial effect" which has attached to it the extraneous interest of the elementary philological research work with which the class is engaged.

It is needless to add that many words do not admit of this treatment. Take *die Schlacht*, for example. The teacher has written it on the board; the class has attacked it with enthusiasm—then become dubious. No good reason can be found why *Schlacht* should be feminine, try as they all may. They have made a Herculean effort, without any result apparent to themselves.

The inference is obvious. The pupil has been unconsciously beguiled into a splendid memory drill; eyes, logic, power of association of ideas, emulation, mental effort as a whole, all have worked together to put the "logos," *die Schlacht*, in its proper niche in the mind. Incongruity has had it usual strong effect here, so that with these devices, and after we have passed the lions over the gateways of the unfamiliar and the revolutionary, the problem is not so terrible a one after all. The plan is at least worth trying, and if the pupil resorts to this means when he is preparing his lessons at home, it will have accomplished in most instances that which it set out to achieve.

Some Reasons for Decrease of Interest in Nature Study

ARTHUR S. DEWING, PH.D., HARVARD UNIVERSITY, CAMBRIDGE, MASSACHUSETTS

AN impartial observer who feels himself interested in the nature study movement cannot but feel that, at the present time, nature study is not as prominently a part in the school program as it was a few years ago. There was a time, not many years distant, when a wave of enthusiasm passed over the country, and nature study was accepted by the schools and the public as a new and stimulating influence in our common schools. Unfortunately, however, the claims which the nature study enthusiasts made at the time were not fully realized. As a result a decline set in, so that at the present time one finds numerous instances in which schools have distinctly lessened the amount of nature study. Frequently that entire portion of the school work has been omitted. Those who see the permanent value, both from the point of view of the psychology of mental training and from the point of view of the accommodation of the school children to their environment, must witness this reaction with no small measure of alarm. The nature study movement stood for more of fundamental value than the enthusiasts themselves seemed to imply. Accordingly, there were many who on the one hand reduced nature study to little else than ridiculous wordy talk, while on the other hand there were many who changed the spirit of nature study into a superficial and pedantic effort to teach elementary science.

It is the present purpose to suggest a few of the influences which may have led to the present reaction against nature study, and perhaps, by indicating the causes, suggest adequate remedies. An enquirer, in a recent note,* suggested the result of certain questions which he had asked a comparatively few teachers, but the results are probably indicative of the fundamental conditions throughout the country. This question

* Mr. G. H. Trafton, Nature Study Review, Volume IV, page 187.

among others was asked: "What are the chief difficulties you encounter in teaching nature study?" The answers indicated: securing material, 37 per cent; lack of knowledge on the part of the teacher, 30 per cent; and lack of time, 18 per cent. Of these the first is perhaps the most important. The proper instruction to teachers is a matter which the normal schools are meeting with ample effort, and the matter of time is something that will adjust itself as soon as education has realized the fundamental significance of nature study work, but the problem of securing material is one which cannot be passed over thus lightly. Few teachers have the time, none have the extra energy that will enable them to select the very best material for their own class work, and yet upon this material depends the success or the failure of nature study. The spirit of the work requires a first-hand acquaintance with the facts concerned. Were this not so, it would degenerate into a crude formalism, soon to be replaced by something more vital and more significant. Two courses in this particular seem to present themselves. Either the school time must so arrange itself that the teacher has both the adequate time and the inclination to collect her own material, or else the school boards must furnish it from some outside sources. In either case the adoption depends upon the will of the men in authority, and their failure to recognize this matter must be pleaded as one of the reasons why nature study fails to produce the results that many hoped.

Instead of referring to either of the other causes, lack of training and lack of time, which are matters that would adjust themselves as soon as nature study is given its place in the school curriculum, there are others of perhaps more fundamental importance that the teachers themselves did not fully realize. The first of these is the difficulty of supervision. Our present mechanical method of dealing with problems of the elementary schools has impressed upon the minds of many that no subject is worthy of consideration which cannot be made to take a regular part in exhaustive and systematic reports. It has become almost an aphorism among educators that our present formal and mechanical attitude toward the elementary schools

has served to undermine not only the individuality of the pupil, but also the initiative and enthusiasm of the teacher. School conditions, however, are such that this mechanical attitude toward education prevails, especially in cities. Following in a wake of this attitude comes the demand of the school board, or school authority, upon the superintendent that his reports and the reports of his teachers shall assume likewise this mechanical form. Nature study in spirit means vastly more than is implied in educational mechanism. Its value lies in the intimacy and vitality with which it approaches fundamental causes, and just because of this character the work of nature study cannot be easily embodied in stiff, formal reports that superintendents have learned to idealize.

Another and no less important difficulty lies in the lack of competent supervisors. While nature study, above all else in the elementary schools, promotes individuality of expression, there is, nevertheless, a necessity that teachers themselves have some outside stimulus. This has been recognized in such subjects as drawing, music, domestic science, and even in the sciences of secondary schools, so that inability to properly supervise the work of a grade teacher in her nature study must be looked upon as a serious menace to the permanent success of her teaching. This supervision is not necessarily the kind that narrows, but it must be of a kind that stimulates even the methodical teacher in the spirit of the nature study movement.

The last difficulty which might be suggested, one perhaps that will be righted if the others are properly remedied, is the difficulty of graded adjustment. It is obvious that broad generalizations, such as one finds in chemistry or physics, are utterly unsuited for elementary schools. On the other hand, nature study is more than biology, more than a dilute botany or zoology, such as the teacher may herself have had in some normal school. The proper arrangement of lessons day by day and year by year is a matter which can be adjusted only to a broad perspective. In this there are differences of personal opinion, differences between city and rural schools, and the fundamental difficulty of access to material.

All of these influences which have been suggested are not necessarily destructive of the nature study idea. On the contrary they may be easily overcome, provided they are faced squarely and the means of dealing with them carefully considered. The importance of the spontaneity and vitality which lies at the heart of nature study is too well recognized for educational systems to pass over the matter lightly. Yet these difficulties can be met only through careful, considerate and adequate provision.

The Boy and the Cigarette Habit

H. S. GRAY, CHICAGO, ILLINOIS

AMONG those who express themselves emphatically on the cigarette question are two classes of extremists. In one class are those who, when they find a boy who is stupid, neurotic, insane, a degenerate, a delinquent, or a criminal who is also a cigarette smoker, attribute his condition and his misdoings wholly or almost wholly to cigarette smoking. In the other class are those who declare that cigarette smoking had little or nothing to do with the case and that cigarettes are being made a scapegoat. They do the same thing themselves that they condemn in their opponents; they go too far. In their desire to pose as broad minded they minimize the evil of cigarette smoking too greatly. Each class irritates the other by their misstatements.

The truth lies between these two extremes. The problem of determining to what extent cigarette smoking is the cause and to what extent the effect of a bad physical, mental and moral condition in a boy is a difficult one. The cigarette habit is partly cause and partly effect in the same person. The problem is always a complicated one because there are always other harmful factors along with the cigarette habit, such as some or all of the following—poor heredity, bad environment, malnutrition, vicious associates, or other bad habits aside from the cigarette habit. But, however many factors enter into the case, cigarette smoking furnishes its quota of harm. Since cigarette smoking impairs the physical condition, it follows that the mental and moral faculties are also impaired, such is the interdependence between them.

One hears it said that cigarettes are the least harmful form of tobacco and also that they are the most harmful, and this "most" and "least" is another bone of contention. Those who say that cigarettes are the least harmful form of tobacco usually take into consideration only the small quantity of tobacco in cigarettes as compared with the larger quantity and stronger quality in a cigar or pipe. Too much emphasis

should not be laid on the point that there is less tobacco in cigarettes than in cigars, for the smaller quantity and milder quality of tobacco in cigarettes are more than offset by the early age at which they are used and by the practice of inhaling the smoke.

Notwithstanding the stronger quality and larger quantity of tobacco in a pipe or cigar and the greater prevalence of cigar smoking, many people consider the harm done by cigarettes as greater than that done by either pipe smoking or cigars, because the cigarette habit, so frequently acquired by boys at a very early age, by interfering with their development and wrecking their health, bars them from a career of usefulness. Their fate is aptly described by President David Starr Jordon, who says, " Boys who smoke cigarettes are like wormy apples that fall from the tree before they are ripe."

Whatever diversity of opinion there may be on other points in regard to cigarette smoking, it is generally admitted that cigarettes are very injurious when inhaled, when smoked by persons of immature years, and when smoked to excess. Most cigarette smokers come under one or more of these headings. It is these facts that furnish the working basis for the crusade against cigarettes.

The extent to which cigarettes are inhaled is much greater than is generally supposed. Dr. Casey A. Wood, a distinguished opthalmologist, former president of the American Academy of Medicine, an organization specializing in medical sociology, says, as will be seen in his letter appended below, that almost all cigarette smokers inhale the smoke.

The age at which the use of tobacco is begun is earlier than it used to be because of the supply of cigarettes on the market and their cheapness. A small boy's first attempts at learning to smoke a pipe or cigar make him so sick that he does not care to repeat the experience in his childhood, but not so with cigarettes. In a cigarette the tobacco is put up in a form that makes it available for use by persons of immature years. Cigarettes serve to fasten the tobacco habit on a large number of persons who otherwise would never acquire it. A large number of children under twelve years of age are addicted to

the use of cigarettes, as may be ascertained by inquiry among school teachers and judges of juvenile courts. Sometimes the habit is begun at the age of six or seven.

That there is a tendency to smoke cigarettes to excess is a matter of common observation and is often frankly admitted by cigarette smokers themselves. Thirty to sixty cigarettes a day is not an unusual number for a cigarette fiend to smoke. Some have the proud distinction of exceeding even this number. Often the smoker does not know the number himself.

How hard it is to break off the cigarette habit after it has once gotten a firm hold, everyone can see for himself. Not only does a cigarette smoker crave more and more cigarettes, but in time they lead him to crave something still stronger, as many smokers admit. He gets to a point where he is not satisfied with cigarettes. He wants cigars, then the strongest cigars, or he takes to the use of liquor or drugs.

Many smokers, having heard the charge made that the tobacco in cigarettes is mixed with opium or other drugs and that the paper contains arsenic, roll their own cigarettes, thinking that by so doing they are escaping the injurious effects of cigarette smoking; but one kind is as injurious as the other. Cigarettes with nothing in them but tobacco and wrapped in paper that is free from poisonous admixture are sufficient to account for the harm done.

Young men frequently contend that cigarette smoking does them no harm and argue in defense of their practice that physicians themselves smoke cigarettes, and that, if cigarettes were very injurious, physicians would not use them. The same might be said of the use of cocaine, morphine, etc. Judging from the frequent notices that appear in the daily papers of doctors whose lives have been wrecked by the cocaine or morphine habit, the percentage of doctors addicted to the drug habit must be large as compared with the number found in other walks of life. Almost everybody can recall at least one instance that has come under his personal observation of a doctor who has ruined his career or cut short his life by the use of these drugs. Out of one hundred and twenty-eight patients treated in one year in a certain private hospital for alcoholic

and drug inebriates, thirty-four were doctors and six, dentists.

The devotee of the "dude's dope" takes no stock in warnings. Friendly remonstrances he attributes to "prejudice," and answers with a pooh, sneer or grin. What science has proved and experience demonstrated has no weight with him.

Sometimes young men show off by exhaling their breath against a handkerchief and then exhibiting as an achievement to be proud of a yellow stain on the linen where their breath has discolored it. Any remarks as to what harm cigarette smoke must be doing to their throats and lungs are not deemed worthy of any serious consideration, but are dismissed with a grin.

Whenever the health of a man who uses cigarettes to excess breaks down, he seldom will admit that his ill health is due in any measure to cigarette smoking. Not infrequently, with self-pity and amusing self-deception, he attributes his condition to "overwork." His cigarette complexion—a peculiar walnut shade—is a badge that shows what his occupation has been.

Nature has ordained that the body keep automatic record of all it does. She lets offenders go their way, lets them run the length of their ropes and find out their limitations. But their mocking never goes unpunished. When the day of reckoning with Nature comes—and come it always does sooner or later—they find themselves face to face with a stern accountant who exacts full penalty for every violation of her laws.

As to the effects of the cigarette habit on body and mind, smokers are affected according to their constitutions. Owing to the difference in powers of resistance, one man may be able to stand cigarette smoking for some time, apparently without ill-effect; another succumbs very quickly. The younger the smoker, the more susceptible he is to tobacco or any other drug. If cigarette smoking is injurious to the young, it requires no stretch of the reasoning powers to see that it is injurious to adults.

Below are quoted the views of a number of eminent physicians as to the injurious effects of cigarette smoking. These statements are not an exhaustive treatment of the subject—in an article as brief as this they could not be—but they show some of the bad results most commonly seen.

"I myself have not made any experimental observations respecting the effects of cigarette smoking on the health. I share the general idea that it is productive of great injury. This, I believe, is not particularly because the tobacco in cigarettes is different from that used for other purposes but because of the manner in which cigarettes are used and the age of the persons who use them. I think the greatest objection to cigarette smoking is the fact that it is practiced so extensively by very young persons. . . . Another objection to it is that the products of combustion of the cigarette enter the mouth and the lungs of the smoker with less purification and filtration than from either a pipe or a cigar. Another objection is the enormous numbers that usually are smoked, for some reason the cigarette habit being of such a character as to induce excessive smoking. I do not share the belief that cigarettes or the paper that wraps them are treated with opium or arsenic or any other poisonous matter. This idea is, I think, undoubtedly a mistaken one. I sympathize with those laws which forbid the smoking of cigarettes by minors. I am not a believer in sumptuary laws for people who have reached mature years and know their own business. I should be in favor of laws which would require the tobacco of cigarettes, as well as for other purposes, to be of the proper grade and to be properly branded. I am opposed to the name 'Turkish Cigarettes' when used on American tobacco. I should like to see all users of tobacco use it temperately, and especially those who use cigarettes, which appear, as I have already stated, to be more likely to injure health than almost any other form in which tobacco is used."—*H. W. Wiley, Chief of the Bureau of Chemistry of the United States Department of Agriculture.*

"I wish to make the following statement from the standpoint of the practical ophthalmologist: Inasmuch as cigarette smoking (that almost always includes the inhalation of the smoke) is particularly hurtful to the eyes of adults above forty years of age, when indulged in to excess, I am distinctly opposed to its use by minors. I freely admit that the effects of tobacco upon minors are more easily demonstrated upon the heart muscle, the digestive apparatus, and the nervous system than upon the

ocular apparatus; yet I have seen a number of cases in which weak eyes directly and indirectly resulted from indulgence in cigarette smoking by juveniles.

"I have the same statement to make with regard to its effect upon the hearing. The use of cigarettes has an evil effect upon the mucous membrane lining of nose and throat, and, as the latter organs are pathologically closely connected with the organ of hearing, anything that affects them is likely to react upon the hearing."—*Casey A. Wood, M.D., Chicago, Professor of Ophthalmology in the Post-Graduate Medical School and Professor of Clinical Ophthalmology in the College of Physicians and Surgeons.*

"I have seen several instances in which chronic conjunctivitis was due to smoking cigarettes to excess. I have seen several instances in which tobacco ambylopia was undoubtedly due to the very same cause. Oftentimes I have observed the sense of smell almost irredeemably destroyed by overuse of cigarettes, and I have repeatedly seen patients in whom the heart and its action were seriously and probably permanently injured by this injurious habit. Personally I observed at one time when I smoked a few cigarettes some years ago an increased catarrh in the Eustachian tubes and middle ear, associated with increased deafness. On ceasing to smoke cigarettes and tobacco in any form, these conditions were improved. This also occurs often in patients of all ear specialists."—*James A. Spalding, M.D., Portland, Maine, in 1907 vice president of the American Academy of Medicine, eye and ear surgeon to the Maine General Hospital.*

Dr. W. S. Hall, professor of physiology in the Medical School of Northwestern University and author of a text-book of physiology for medical students and physicians, has collected in pamphlet form a compendium of medical views on the general subject of tobacco. The next extract is taken from that pamphlet. "Every schoolboy knows that when athletes are in training for a contest they are obliged to abstain absolutely from all forms of tobacco. Is this done on theoretical or moral grounds? Not at all. It is done because experience of many decades demonstrates that when men use tobacco

they cannot do as well as they can when free from its effects. Under the influence of tobacco the young man is less alert, less steady, and has less endurance.

"While excessive cigarette smoking is often associated with the abuse of alcohol, cocaine, or other drugs by men of mature years, the undeveloped youth often paves the way to and rapidly enters upon a course of drug and liquor taking as well as crime through this harmful form of tobacco addiction. The boy who before adolescence forms the cigarette habit will lie, deceive, and in other ways show degenerate tendencies. His physical and mental development will be inhibited and his moral tone lowered. He will suffer at times from depression and irritability, thus disclosing an over-stimulated and subsequently exhausted nervous system, which seeks relief through the medium of more active agents than tobacco. At twenty-five our cigarette-smoking youth is a confirmed user of drugs or liquor, his moral lapses are marked by vicious and criminal acts. From my experience and observation in treating delinquent types I am firmly convinced that the continuous and excessive use of cigarettes during adolescence is one of the most important single causes in the production of inebriety and its allied moral and mental defects.

"That the use of cigarettes in early life is a most potent factor in the production of the diseases of inebriety and their associated disorders is made manifest by a review of the following statistics: During a period of six months three hundred and ten patients, ranging from eighteen to seventy years of age, were received and treated in this hospital. Of this number fifty-one were less than thirty years of age. These fifty-one young men had been habituated to the use of cigarettes for five or six years prior to their admission to the hospital. The use of tobacco in this form antedated and predisposed all of these persons to the use of spirits or drugs. Twenty-four, or nearly fifty per cent, had been convicted one or more times of crimes of various natures ranging from petty theft to burglary. Eleven had been users of cocaine and morphine as well as liquor."—*W. S. Osborn, M.D., Superintendent of the State Hospital for Inebriates, Knoxville, Iowa.*

"Cigarette smoking is the most dangerous form in which tobacco can be used, because combustion goes on so near the mouth that all the products of burning are drawn into the mouth without change and are absorbed by the blood vessels and carried to the brain. In the pipe and cigar many of the products from burning are condensed in the stem of the pipe and body of the cigar, and never reach the mouth. In the cigarette these poison products, small in amount, are constantly taken by the blood vessels of the mouth and affect the senses. The sight, the smell and the hearing are all diminished and enfeebled, later the power of reason and muscular control. No form of tobacco is so cumulative in its action as the products from cigarette smoking; the quantity is small, the absorption is more rapid, and the resistance by nature is less active. The cigarette smoker is slowly and surely poisoning himself, and is largely unconscious of it. In the young the poisoning is very acute and active; in elderly persons it is less prominent, but that it is equally dangerous, in the effects on the nerves, on the brain and on the senses, enfeebling them and destroying their activity, is beyond all question. The pipe or cigar smoker may not seem much worse for his addiction, but the cigarette smoker is always markedly damaged by it."—*T. D. Crothers, M.D., Hartford, Connecticut, for many years editor of The Quarterly Journal of Inebriety, professor of nervous and mental diseases in the New York School of Clinical Medicine, author of various works on inebriety and drug habits.*

"There is no doubt but that in the use of tobacco we have one of the most injurious habits of the growing boy. I am inclined to think that in its use, even after the attainment of growth, we have the cause of much of the demand for stimulation by alcoholics that is demoralizing so many men all over the world. The depression of nicotine must be met and counteracted by some stimulant that is pleasing in its general immediate effect, and so I think that we have a broad field in which to trace the evil results of the use of tobacco. In inquiring for the benefits that accrue from its use, I have always been impressed with the fact that the replies could be used with equal aptness in explaining other drug habits, such as the use of morphine, etc."—*J. W. Seaver, New Haven, Connecticut.*

While connected with the Yale gymnasium Dr. Seaver made a comparative study of smokers and non-smokers. Of this investigation he says in The Arena, in an article on "The Effects of Nicotine": "For purposes of comparison the men composing a class in Yale were divided into three groups. The first was made up of those who did not use tobacco in any form; the second consisted of those who had used it regularly for at least a year of the college course; the third group included the irregular users. During the period of undergraduate life, which is essentially three and one-half years, the first group grew in weight 10.4 per cent more than the second, and 6.6 per cent more than the third. In height the first group grew 24 per cent more than the second, and 11 per cent more than the third; in girth of chest the first group grew 26.7 per cent more than the second, and 22 per cent more than the third; in capacity of lungs the first group gained 77 per cent more than the second, and 49.5 per cent more than the third." Similar results were shown by Dr. E. R. Hitchcock's investigation among the students of Amherst College.

"Cigarette smoking is a most pernicious practice, for it is used at that time of life when the human being is in the processes of development, when the nutritive function should not be interfered with if ideal development is hoped for. Just how much harm is being done to the human race by cigarette smoking is hard to say, but the cigarette is not altogether to blame. Show me a child that has been raised normally—fed properly—kept away from coffee, tea, chocolate, cocoa, and given no meat until five or six years of age, and then very little—fed good wholesome food—that has slept in a well-aired bedroom—that has been taught to obey—to have some self-discipline—to know domestic authority, and I will show you a child that will not take to cigarettes or any other form of tobacco.

"The tobacco habit is one of the legitimate cravings of a degenerated hunger—it is the normal demand made by a diseased nervous system. This is so true that it ought to be common knowledge. The cigarette *per se* is not harmful, for a normal child would not put it in its mouth, and, if it did, it

would throw it out very quickly. Mothers and fathers and society generally need to know the importance of having children reared right as regards food and all environments, and then we will not need prohibition to protect us from alcoholics, tobacco and the slum life."—*J. H. Tilden, M.D., Denver, Colorado, Editor of The Stuffed Club.*

Dr. Tilden calls attention to the fact that it takes two factors to make a product. So, too, when the product is trouble. One factor is cigarettes, the other is boys who have not been fed and reared properly. The cigarette problem can be approached from either of two directions, the demand or the supply. Dr. Tilden calls attention to what is sometimes lost sight of, the work of preventing the demand. Cigarettes would have no attraction for a boy, be no temptation to him, if he had always been properly fed and well trained. It is obvious that, if there were no demand for cigarettes—if boys and men took no interest in them—the supply would do no harm to the community and would take care of itself. Manufacturers cannot continue making what there is no demand for. There are many forces at work in the community which, while not aimed directly at eradicating cigarette smoking, yet contribute to that end, chief among these agencies being the teaching of domestic science in the public schools. Courses in domestic science are being rapidly introduced into schools formerly without them, but the day is still distant when an adequate knowledge of domestic science will be a common household possession. There is need of work against both the supply of cigarettes and the demand for them.

An elementary or high school teacher who is not opposed to the use of cigarettes by pupils would be hard to find. The quoted statements that follow represent the views held by teachers on the subject of cigarette smoking. The number of such statements could be multiplied indefinitely. In boarding schools for boys in which cigarettes are not prohibited, cigarette smoking is a polite accomplishment. Their being away from home and together so much of the time favors the spread of the habit, and, furthermore, a boy is guyed and made to feel that he is a sissy if he refuses to smoke.

"In an investigation I once made some time ago, the results of which are published in the Child-Study Monthly, I found that during a period of three years there were at least one hundred and twenty-five boys addicted to the use of cigarettes in this school. Among these one hundred and twenty-five were found nearly all of those pupils who were from two to five years older than the average age of children for the grade, as well as ninety per cent of those boys hard to discipline and all of those who were habitual truants. Those who were especially known for truancy gave various reasons for it. Some said they stayed out to smoke because they could not do without cigarettes for even half a day. Three children six years of age when they entered school had already formed the cigarette habit.

"Not more than ten of these one hundred and twenty-five were able to keep pace with their class. After the careful investigation of the cases of ten boys who were four or five years too old for their grades, I found that each one had begun school at six years of age and had made satisfactory progress up to the time he began smoking, when all progress stopped. I succeeded in getting many of the smokers to break off the habit entirely, and a few of them, formerly the lowest in their class, became the best.

"When I discover that a boy is using tobacco, I first of all have a frank and friendly talk with him, and then I give him some pamphlets, magazine articles, etc., on the injurious effects of cigarette smoking to read, a large supply of which literature I keep on hand for just this purpose. I also send for his parents and try to impress on them the gravity of the situation and to enlist their co-operation. In this way, by nipping the practice in the bud, I have greatly reduced the number of cigarette smokers in this school.

"It is astonishing how many boys, by their own confessions, steal to get money with which to buy cigarettes. The boys tell me that they never buy candy or fruit with the money, that it all goes for cigarettes, and that they would not have stolen money for any other purpose.

"Cigars and pipes are smoked to a considerable extent by boys in the seventh, and especially the eighth grade, to say

nothing of high school boys." — *Mary Darrow Olson, Principal of the McCosh School, Chicago.*

"Up to one year ago we had considerable smoking of cigarettes in our public schools. In the grades above the third eighteen per cent of the pupils admitted it, and in the high school twenty-seven per cent pleaded guilty to the practice. These figures are exact. I collected the statistics myself from all the schools, with every safeguard to insure accuracy. After ascertaining the number of smokers I had a consultation with my principals and teachers, and we decided to try what we could do by a systematic campaign against the vice. We first had a mass meeting of parents in which different speakers, including Miss Lucy Page Gaston, of Chicago, set forth the evils of this habit and solicited their co-operation in breaking it up. We then had these speakers address the pupils of every room in the city and ask them to join an anti-cigarette league and wear the badge. Hundreds of our children did this, in fact, almost all of them. The result has been that at the present time we have scarcely any cigarette smoking among our school children. Another result of our work was that the city council passed a stringent anti-cigarette ordinance, which has been of service in maintaining the good results we have accomplished." — *S. E. Raines, Superintendent of city schools, Freeport, Illinois.*

There is no reason to suppose that the percentage of cigarette smokers is higher in Freeport than in Chicago. Mr. Raines gives the percentage in the grades above the third. Mr. Bodine, in his statement, quoted farther on, calls attention to the fact that a large number of children in Chicago in the first, second and third grades smoke. Estimating the number of cigarette smokers in the elementary schools at eighteen per cent, there are 20,000 boys in the elementary schools of Chicago who smoke.

Prof. Herbert F. Fisk, professor of pedagogy in Northwestern University, while principal of the Evanston Academy, asked the boys under him to quit smoking or leave the school. His reasons for this action he made public in the following statement: "Whatever may be thought of the use of tobacco by grown men, there can be no division of opinion among

educators as to the injurious effects, both physical and mental, when tobacco is used by boys or by young men who have not yet reached maturity. . . . Not less distinctly marked are the effects of tobacco upon the scholarship than upon the physical endurance of students. It is rarely the case that a student who makes any use of tobacco attains to superior scholarship. A complete tabulation of the scholarship and tobacco using habits of young men in the academy at one time discovered that out of 300 young men 22 per cent of the whole number made more or less use of tobacco. Among the 75 per cent having the highest standing only two were tobacco users, or 3 per cent. Among the second quarter in scholarship there were eleven, or 14 per cent. Among the third quarter fifteen, or 20 per cent, while among the lowest quarter there were forty-two, or 56 per cent. A similar comparison, if made in any other year or for a period of years, would have given very similar ratios. Of all forms of tobacco using, cigarettes are without question the most harmful.

"I am convinced of the destructiveness of the cigarette habit, and believe in its total eradication, if this can be brought about. Cigarette smokers will show the effect of the habit in carelessness and listlessness in their work and general unreliability. I assume, as soon as I learn that a student is a cigarette smoker, that his scholarship will never be above the average, and usually will be below the passing point, and that it will only be a question of time when we will have to drop him from our student community."—*Arthur H. Wilde, Principal of the Academy of Northwestern University, Evanston, Illinois.*

In his Strength of Being Clean, a Study of the Quest for Unearned Happiness, a little book full of profound wisdom and flashing with epigrams, Prof. David Starr Jordon, a distinguished scientist, president of Leland Stanford Junior University, says: "Happiness must be earned, like other good things, else it cannot be held. . . . No one rides deadhead on the road to happiness. He who tries to do so never reaches his destination. He is left in the dumps. . . .

"The basis of intemperance is the effort to secure through drugs the feeling of happiness when happiness does not exist.

. . . There are many drugs which cause this pleasure, and in proportion to the delight they seem to give is the real mischief they work. . . . Alcohol gives a feeling of warmth or vigor or exhilaration, when the real warmth or vigor or exhilaration does not exist. Tobacco gives a feeling of rest which is not restfulness. . . . One and all these various drugs tend to give the impression of a power or a pleasure or an activity which we do not possess. One and all their function is to force the nervous system to lie. One and all the result of their habitual use is to render the nervous system incapable of ever telling the truth. One and all their supposed pleasures are followed by a reaction of subjective pains, as spurious and as unreal as the pleasures which they follow. Each of them, if used to excess, brings in time insanity, incapacity and death. . . . The weakening effect on the will is greater than the injury to the body. In fact, the harm alcoholic and similar excesses do to the body is wholly secondary. It is the visible reflex of the harm already done to the nervous system. . . .

"To guard his own future is the greatest duty the young man owes to society. . . . It is our past deeds which are our real masters.

"Of course I am opposed to the smoking of cigarettes by boys. While I cannot by any means agree with some of the extremists, who make the cigarette habit the greatest evil of boy life, it is, I think, abundantly established that smoking for children and adolescents is fraught with many dangers, and that excess tends to impair the full development of the nervous system, weakens circulation and impairs digestion, and favors craving for other forms of stimulants."—*G. Stanley Hall, President of Clark University, Worcester, Massachusetts.*

"I am entirely clear in my own mind that the use of tobacco, at least by men under twenty-five, is to be vigorously opposed, partly on considerations of health, partly on considerations of intellectual development, and partly on moral considerations. Upon all of these points, so far as concerns especially the young, both expert authority and statistical evidence seem to me to be pretty decisive. And it has seemed to me specially unfortunate that the situation in many of our colleges is such as

to show that the practice of smoking tends to become tyrannical as concerns even those who do not themselves wish to smoke, since it is plain that they are often made to feel that they are not coming up to what is expected of them, or are made to feel that they are unsocial if they do not share in the smoking habit."— *Henry C. King, President of Oberlin College, Oberlin, Ohio.*

Judges of juvenile courts, superintendents of reform schools and of departments of compulsory education come in close contact with large numbers of boys who are cigarette smokers. Below are quoted statements from several well-known men holding such positions: —

"Some years ago, before I inquired into the subject, I shared the widely prevalent notion that this agitation for abolishing the cigarette is more or less of a joke; but since accepting my present position and after seven years' experience in that position, dealing as I do with from fifteen thousand to sixteen thousand children a year—and by that I do not mean they are all truants, but temporary absentees as well as truants—I have come to the conclusion that the cigarette evil is one of the most vital questions before the people to-day and a peril to school children which should be eliminated.

"I have sent 1,015 boys to the Chicago Parental School, a school for habitual truants under fourteen years of age, together with a few class-room incorrigibles. Eighty per cent of this number were cigarette smokers. In considering these figures it should be borne in mind that all during the time I am speaking of there was a state law in Illinois, reinforced by municipal ordinances, forbidding the sale or giving away of cigarettes to minors. I have here some statistics to prove beyond doubt that cigarettes create the backward pupil, and from the ranks of the backward pupil we get most of our habitual truants. The boys sent to this institution range in age from seven to fourteen. The average age is eleven and a half. I found many boys who were twelve, thirteen and thirteen and a half years of age who were only in first, second or third grade. Three hundred and one of these boys at the parental school came from the third grade, 217 came from the second

grade, 189 from the first grade, 146 from the fourth, 47 from the fifth, 140 from the sixth, only 4 from the seventh, and 1 from the eighth. The boys who were in the sixth, seventh and eighth grades did not smoke cigarettes.

"The habitual truant, as a rule, is a dull pupil and backward in his grade. His physical and mental defects are caused partly by heredity, partly by environment and lack of nourishing food, partly by his cigarette smoking. The habitual truant almost invariably is addicted to the use of cigarettes. Truancy is the cradle of crime. A box of cigarettes and a nickel library can easily make a truant, and such truant, poisoned in mind and body, is the future enemy of society.

"There are very few girl truants. A truant boy's sister has the same lack of nourishing food, the same environment; but the boy smokes cigarettes and the girl does not, and the girl goes to school. Now there is a contrast for you. The girl is usually up in her grade, and the boy is not. He is behind because he is dull. He frequently fails to be promoted. He makes little or no progress. Finally he gets to be so much larger and older than the other children in the grade he is in that he is ashamed and does not want to stay in school any longer, and therefore he becomes a truant. Why is he dull? That is the question. I think cigarettes contribute in a measure to his mental and physical condition.

"There is just as much cigarette smoking among the spoiled children of the rich as there is among the neglected children of the poor. Notwithstanding the laws against furnishing cigarettes to minors, cigarette smoking is on the increase among the school children of Chicago and elsewhere. It is increasing among society women, too.

"I would favor any legislation that would suppress the smell of the cigarette even if, to do it, it is necessary to suppress the sale and even if that is the only remedy! I think suppressing the smell of the cigarette would be justifiable legislation."—*W. L. Bodine, Superintendent of Compulsory Education, Chicago.*

In 1905 a state law was passed prohibiting altogether the sale or giving away of cigarettes in Indiana. It was largely through

the efforts of Judge George W. Stubbs of the Juvenile Court in Indianapolis that this law was passed. One of the probation officers of his court collected the opinions of teachers, principals and superintendents of schools all over the country on the subject of cigarette smoking among their pupils. Extracts from these letters Judge Stubbs included in an address he delivered in December, 1904, before the Indiana State Teachers' Association, an address which was subsequently printed in pamphlet form, and of which he says: "The opinions expressed in that address have become more intensified and firmly fixed than ever by my experience during the last four years with boys who use cigarettes.

"Since the Juvenile Court was established here a little more than a year and a half ago, I have had before me 1,540 boys and girls—mostly boys—charged with offenses against law. These charges covered the entire list of offenses known to the law in Indiana, from the most trivial misdemeanor to the greatest of crimes. In inquiring into the causes that have brought about such a great increase in the number of offenses against the law in the last few years by boys, I have reached the conclusion that, aside from the frailties and weaknesses that afflict humanity and that are likely to develop into crime, especially where there is lack of parental control or where the parents themselves belong to the ignorant or vicious classes, by far the most potent factor is the cigarette habit. . . . I have found that in nearly every case where the offense charged was of a grievous, criminal or degrading and debasing nature, the defendant was a user of cigarettes. . . . Cigarette fiends come to think that an education is unnecessary and all kinds of work a nuisance.

"I have had boys before me who had sold their own clothes, and in one case a boy of about fourteen had stolen his mother's dress skirt and had even stolen the blankets off her bed and sold them to a secondhand dealer to get money for cigarettes. Many mothers have told me of their boys having taken articles out of the house to sell in order that their craving appetite for cigarettes might be satisfied. One had taken a chair, another had taken pictures, and one in the course of a few months had

almost denuded the house, taking the furniture piece by piece while his mother was away from home at her work.

"Men who oppose legislation prohibiting the use of cigarettes base their opposition on the point that such legislation is an infringement upon their personal liberty, but they ignore the fact that all such legislation is intended to save the boys from ruin. They also ignore the further fact that most states, including Indiana, have for years had laws prohibiting the sale of cigarettes to boys. They also ignore the fact that such laws never have been and never can be enforced, for the reason that as long as it is lawful for men to buy and smoke cigarettes, the boys can and do find ways to get them. Such men seem to be anxious to preserve their 'personal liberty,' even if thousands of young boys are destroyed."— *George W. Stubbs.*

"In this institution we have over a thousand boys, most of whom were cigarette smokers at the time they were committed here. I do not mean to say that they were committed for smoking cigarettes, but most of them had the habit. I believe that cigarettes are injurious in every way: they dwarf the body, dull the intellect, and numb the sense of good morals. Boys having this habit do not seem to appreciate the difference between right and wrong. After these boys are committed here and consequently have no further opportunity to smoke, they seem to take on a better moral tone. Cigarette smoking is indirectly responsible for a great deal of crime and the cause of a large number of boys being sent to this school."— *C. B. Adams, Superintendent of The Boys Industrial School, Lancaster, Ohio.*

It is not unusual for employers to forbid the use of cigarettes or other forms of tobacco during working hours, but many go farther and refuse to hire men, and especially boys, who smoke cigarettes at all. The idle and worthless, dudes and degenerates, are invariably addicted to the cigarette habit. It is not confined to these classes; but, even so, there are many business men who will not have in their employ those who are addicted to the cigarette habit.

The following extract is taken from the forcible presentation of the subject by Elbert Hubbard in a pamphlet he wrote

entitled The Cigarettist. "Cigarette smokers are often active, alert, competent men. They are quick to see an opportunity, ready to take advantage of it, appreciative, sympathetic, kind. But when you see such a one he is in his prime, at his best. His star is at the zenith, not on the horizon or at nadir. Never again will he be as much of a man as he is now. His future lies behind. He is not growing into a better man. He is not in the line of evolution.

"If you want a man who will train on, flee the cigarettist as you would a pestilence. He will surely disappoint you. As a close observer of men and an employer of labor for over twenty-five years, I give you this: Never advance the pay of a cigarette smoker; never promote him. I say do not promote the cigarette smoker, for the time will surely come when you will rue the day you ever placed him in a position where he can plague you by doing those things which he ought not and by leaving undone those things he should have done.

"Cigarette smoking begins with an effort to be smart. . . . I do not make my appeal to the cigarettist himself, because it is of no use. He has a fixed belief that he is immune and that all men are mortal but himself. His name is Mr. Knowitall. For the young man who has become so calloused that he smokes cigarettes in the presence of his mother, sister or sweetheart, there is little hope. Hope is only for the youth who is ashamed of his lapses. The poison has already tainted the cigarettist's moral nature, and for him the work of dissolution, disintegration and degeneration has begun. He is a defective—a physical, mental and moral defective.

"I admit that the moral strabismus of the cigarettist is not always caused primarily by his smoking. I admit that it is a fact that the idle, slipshod, inert, secretive, untruthful, take to the habit very kindly. In short, I admit that because a thing goes with a thing, the thing is not necessarily the cause of the thing. The hoodlum who hangs around the livery stable or country railway station and is prone to the haymow habit is invariably a cigarette smoker, and surely it would not be fair to blame his temperamental disabilities to cigarettes; his trouble lies deeper."

Mr. John Wanamaker, Philadelphia, the Larkin Company, Buffalo, the Globe-Wernicke Company, manufacturers of bookcases and office furniture, Cincinnati, the mail order house of Montgomery Ward & Company, and Sears, Roebuck & Company, Chicago, are some of the most prominent business men who refuse to hire boys, or young men under twenty-one, who are addicted to the cigarette habit. Some of these firms employ 5,000 to 8,000 people; several are so emphatic in their disapproval of cigarette smoking that they refuse to employ men of any age, young or old, who are addicted to the habit. In the Chicago post office in the special delivery department, in which nearly 300 boys are employed, there is a ban against cigarettes and other forms of tobacco. The wholesale hardware establishment of Hibbard, Spencer & Bartlett, Chicago, the Tobey Furniture Company, and Alexander H. Revell & Company, manufacturers and retailers of furniture, Chicago, discriminate against cigarette smokers in engaging and promoting employees.

The training of children is a subject to which Mr. Luther Burbank, whose studies of plant life are the most wonderful ever made, has given a great deal of thought. He says that during the course of many years of investigation into the plant life of the world, creating new forms, modifying old ones, adapting others to new conditions, and blending still others, he has been constantly impressed with the similarity between the organization and development of plant and human life. He has given the world the results of this study in his new book, The Training of the Human Plant. Mr. Burbank does not employ men or boys who use tobacco. This is what he said of the cigarette habit when asked his views:—

"No person living or dead, as far as I know, has ever spoken a single word in favor of the benefits of cigarette smoking for the young. What is there to be said in its favor when all observers plainly see the gradual but absolutely certain destruction of all that makes life a joyous voyage? The young cigarette smoker is steadily undermining the very sources of all exuberent health, destroying the integrity and lowering the tone of the most wonderful structure on this earth—the nervous

system of a human being—this beautiful structure capable of enjoying all that the universe contains, or of suffering all that the imagination can picture. The use of cigarettes by the young is nothing more or less than a slow but sure form of painful, lingering suicide to the best part of human life. Many of my young acquaintances are to-day in their graves by the use of cigarettes. Would you place sand in a watch? Would you smudge a house full of beautiful pictures?

"We endeavor in every way to prevent cigarette smoking among our students. We have had at times young men in all stages of the habit. While the injurious effects are not so manifest in the early stages, we find that one who has practiced the habit for any considerable time is inclined to be quite nervous, and unable to concentrate his mind, and cannot in consequence do the quality of work that we would expect from one of average ability. Some smokers show marked stupidity and listlessness.

"The average employer is very much disinclined to employ a person who is addicted to the habit; in fact, there are several prominent concerns here that will not employ cigarette smokers. There are probably no employers who would not prefer a person free from the habit. Some of them are more particular about it than others; still, I think the general feeling and attitude places the cigarette smoker at a disadvantage in the business world, not only on account of the feeling against the habit, but because of the impairment of his faculties that is sure to follow the continued practice. In the present-day business life one cannot hope to meet with the success to which he is justly entitled, unless he has every possible physical and mental advantage in order to meet on equal footing those with whom he must necessarily compete. Certainly the habit can be looked upon in no other way than as an affliction, and one which is sure to detract from the success qualities of its possessor. Were it only possible to stamp it out entirely, it would mean, I think, a change from almost sure failure to a successful career for many young persons."—*The Metropolitan Business College, Chicago.*

"It is very customary for business men to slip in this inquiry

when writing to me about applicants for positions: 'Is he addicted to the use of cigarettes?'"—*The late W. S. Jackman, formerly principal of The Elementary School of the University of Chicago, and professor of the teaching of natural science in The School of Education.*

The reports of the commissioner of internal revenue show that the consumption of cigarettes is increasing. The number of cigarettes removed from factory or custom house for consumption or sale in the United States has increased from 2,651,618,797 in 1902 to 5,167,021,357 in 1907. The rate of increase for the year 1907 over the preceding year was thirty-six per cent. These figures do not include the large number of cigarettes smokers rolled themselves.

In 1897 Miss Lucy Page Gaston, of Chicago, began an anti-cigarette campaign. Prior to that time she had devoted considerable attention to the subject, but for the last eleven years she has given all of her time to this work. In 1899 she established a local and in 1901 a national anti-cigarette league. She has been indefatigable in her efforts to stamp out the cigarette evil. In over six hundred cases she has gone into court to prosecute violators of the municipal ordinance against the sale of cigarettes to minors.

Tennessee, Wisconsin, Indiana, Nebraska, Washington, Oklahoma and Arkansas have laws prohibiting the cigarette traffic altogether within their borders. Nearly every other state has laws forbidding the sale of cigarettes or other forms of tobacco to minors, but restrictive legislation has proved decidedly inadequate. In many states the laws are a dead letter.

Legislation alone cannot solve the problem. It is too great for any one force alone to cope with it. It needs the combined efforts of all the forces that can be brought to bear upon it—the home, the school, the press and public sentiment—in addition to those already arrayed against it.

Examination Questions for Shakespeare's Hamlet

MAUD ELMA KINGSLEY

1. To what class of dramatic composition does the play HAMLET belong? Why is it so classed?

2. Where and when is the scene of HAMLET laid? To what extent does the dramatist seek to reflect the real life of the place and time in his plot?

3. Explain the family relationships existing between Hamlet, the Queen, the King and the deceased King.

4. What interesting story might have been worked up on the lines indicated by the conversation in Act I, scene 1? How must this story have been complicated by the information imparted by scene 2? What further complication is introduced in scene 3? How is this indicated plot, with its complications, thrown into the background by the revelation of scenes 4 and 5?

5. In your opinion, what most affects Hamlet in the ghost's revelation—the details of the murder or the proof of his mother's disloyalty and dishonor? Give reasons for your answer by citing passages from the play.

6. What is the position of Polonius at the Court of Denmark? Do you think him a foolish old intriguer or a faithful and devoted servant to the royal family? Give reasons for your answer.

7. Describe briefly the type of character represented by Horatio, Laertes, Bernardo, Guildenstern. Explain the word "philosophy" as used in connection with Horatio.

8. Do the language and conduct of Hamlet, after the interview with the ghost, seem to you to indicate that his mind is really unbalanced, or rather, that he thinks, by a ghastly pretence of levity, to check the anxious inquiries of his friends?

9. Identify Ophelia. What relations had existed between Hamlet and Ophelia before the beginning of the action of the play?

10. The conduct of Hamlet toward Ophelia in the play must be interpreted as indicating real insanity or heartless egotism. Cite passages to prove either assertion.

11. Do you think that the shameless brutality of Hamlet's speech to Ophelia in scene 1 of Act III sounds like feigned insanity, real insanity or an hysterical outburst? Give reasons for your answer.

12. Show from the play that Hamlet's insanity, whether real or feigned, weakens his position, and strengthens that of the King, as the time for decisive action approaches.

13. What idea or emotion prompts Hamlet to the sword thrust which kills Polonius?

14. Explain the plot of the King in connection with Hamlet's journey to England and the counterplot of Hamlet. Criticise the conduct of Hamlet in this affair.

15. Explain the King's plot with Laertes for Hamlet's destruction. Criticise the conduct of Laertes in this connection.

16. Describe the Death Scene. Why does Hamlet wish Horatio to survive?

17. Compare the characters of the King and Horatio as revealed by the lines,—

O yet defend me friends, I am but hurt,

and

Here's yet some liquor left.

18. The conclusion of the play cannot be regarded as satisfactory from any point of view. Can you suggest any line of conduct which, if followed by Hamlet after his interview with the ghost, might have enabled him to inflict an adequate punishment on the king?

19. Did you ever read or hear any other story of a man who thought himself empowered to act as the minister of Heaven's vengeance on criminals who were beyond reach of earthly law? If you have read any such story, state what measure of satisfaction rewarded the man's attempt to carry out his commission.

20. In the Ghost Scene (Act I, scene 5), explain the expressions: *eternal blazon*, *Lethe wharf*, *lazer like*, *anhouseled*, *disappointed*, *unaneled*.

21. In the soliloquy (Act III, scene 2), explain: *outrageous fortune*, *what dreams may come*, *quietus make with a bare bodkin*, *conscience does make cowards of us all*. Paraphrase this soliloquy. At what crisis in the development of the plot is it uttered?

22. Explain Hamlet's plot with the players, and describe its result. Show that the effect of this device is marred by excess of realism.

23. In Hamlet's advice to the players, explain: *town crier*, *o'erdoing Termagant*, *it out-herods Herod*, *the mirror to nature*, *nature's journeymen*.

24. Describe in detail the Churchyard Scene. Explain: *Christian burial*, *crowner's quest-law*, *Adam's profession*, *the Kings' jester*.

25. Give the context for the following passages. What do we mean in ordinary speech when we use the following quotations from the play of Hamlet:—

But look, the morn in russet mantle clad. . . .
I have that within that passeth show.
More honored in the breach than the observance.
Cavaiare to the general.
A little more than kin and less than kind.
In my mind's eye.

Editorial

THE principal of a large school for boys was a stern old Puritan who believed in the total depravity of people in general and of schoolboys in particular. He was a man of ponderous physical proportions and impressive personality. His voice proceeded from unfathomable depths and inspired unutterable awe in the hearts of his abject subjects. He governed wholly by fear. He never smiled and he never praised. The very best that a boy could do was only what he *should* render and was therefore not praiseworthy, it was only what was expected and demanded. Less than the best was eminently reprehensible. In matters of conduct the theory of this master (the word should be spelled in large capitals) appeared to be that every boy should be reprimanded semi-occasionally, for some offense or other, whether guilty or not. The writer of this paragraph personally knows of an instance in which a poor, bashful, sensitive boy who had recently entered the school—being admitted by special vote because he was below the age limit ordinarily required—was summoned into the august presence of the master, and severely reprimanded for an offense of which he was not guilty. After vainly protesting his innocence and taking his punishment, he took pains to gather the evidence and produce the witnesses to convince the sovereign law-giver and judge that he had been treated unjustly. When the proofs could no longer be avoided or doubted, this was all the satisfaction he obtained: "Well, if you didn't do it you were bad enough to, and deserve to get the punishment that was meted out." This final disposition of the case was communicated in stentorian tones that shook the rafters as well as the frame of the small youth who had tremblingly made so valiant a defense. The incident sounds as though it were from the schoolroom of the immortal "Squeers." It is, however, not caricature but history; and it belonged to the nineteenth century, and a part of the country that is noted for its civilization and its culture.

This teacher had many great qualifications as a teacher, which were, however, seriously overshadowed by his excessive severity. From his school many young men graduated to go out into college and into the rough experiences of business life. Who knows how much of hardness and unfeeling severity they in turn showed to their subordinates through life? But some did not graduate. Some fell by the wayside, crushed and bleeding, their intellectual life dwarfed, their careers sidetracked so far as scholarly pursuits were concerned, their whole history changed and dropped down to a lower plane for time, and perhaps for eternity.

The lesson is that kindness is a far more potent educational instrument than severity. It is far better to commend than to reprove, to praise than to blame. The teacher should be on the watch for virtues and achievements, rather than to be always a critic and on the scent for errors and crimes. The school is a microcosm. The pupils have no greater use for a fault-finding teacher, than the church for a scolding minister, the home for a nagging wife and mother, or the village for a shrew. There are sensitive souls among the pupils of every school, who can be awakened and won, or forever dwarfed and lost to the higher and nobler service of which they are inherently capable. The teacher often has a grave responsibility for recognized or unrecognized cases of arrested development.

As we start out upon a new year, it is a good time to resolve, that so far as possible throughout the year, we will be sunshine instead of cloud and storm to those whose duty it is to look up to us for aid and inspiration.

AN educational idea of the greatest value, and new and novel, has been put into effect in Grand Rapids, Mich., under the auspices of the Public Library, Mr. Samuel H. Ranck, Librarian. A series of public lectures is given in the Ryerson Public Library Building, on the work and expenditures of the several boards and departments of the city. Eight lectures are offered, one each upon the following subjects: The Board of Education, the Board of Library Commissioners, the Board of Park and Cemetery Commissioners, the Board of Health and Poor Commissioners, the Board of Police and Fire Commissioners, the Board of Public Works, the Comprehensive City Plan Commission, the Mayor and Common Council. Many of the lectures are illustrated by lantern slides. They are free to the public. The people have the opportunity, through these lectures, to come into close touch with the officials, and to become intelligently interested in both the theory and practice of municipal administration. They are told how the money which they contribute in taxes is spent, and are shown what equivalents are given to them for the same. At each lecture there is an opportunity to ask the speaker questions. The neat four-page prospectus of the lectures includes a carefully selected list of the best books on municipal government which can be had from the Library. As a means of promoting good citizenship, as an educational force, and as a preventive of graft and dishonest administration in general, we can hardly imagine anything more effective than these lectures. The

plan is illustrative of the value which may be given to a public library when its affairs are administered by an expert who is not only a librarian, but also a large-minded statesmanlike citizen. It is a feasible plan for large towns and cities throughout the country.

THE playground movement has come to stay. It is one of the finest fruits of the modern study of the child from a physiological and psychological standpoint. The normal child in an ordinarily favorable environment will solve the play problem for himself without philosophizing about it. Probably the reader of this paragraph was once a normal child in an average environment. He has only to give rein to his memory, and joyous visions of childhood playdays will come trooping into his mind. There were long summer evenings of "I spy" and "tag" and "prisoners'-base"; innumerable games of marbles and spinning tops and toss-ball; there were huts laboriously constructed and filled with deep luxurious beds of autumn leaves, whose rustle we can still hear down through the decades; there were fishing excursions and nesting tramps; there was coasting and skating and hockey; and later came boating and baseball and tennis and football; and a hundred other diversions that made the days of youth glide by as a dream, until we awoke and found ourselves men in the thick of life's battle. Think of what these sports did for us: hardened and strengthened our muscles; taught us to breathe deeply and so supplied us with oxygen to expand our lungs, develop our heart and cleanse our blood, till our very cheeks tingled with the healthy glow; gave us quickness, agility, grace of movement, and endurance with which to meet the stress and strain of after life. But these physical effects were by no means all. Our games exercised our minds as well, cultivated our judgment, made us observant and ready to take advantage of the swiftly passing opportunity; trained hand and eye to work together for a common end; revealed to us the principles by which is played the great game of life, and so prepared us intellectually for what was before us. Nor was this all; for we found ourselves not alone but with playmates, and we had to learn to play fair. We were in the game not by ourselves alone, but we had relations to others and they had their rights. There was a code of honor and rewards and penalties for right or wrong doing. We learned the great lesson of team work, and realized how insignificant is the individual when alone, how weighty when co-operating with others and obeying the great immutable laws which nature has established. All these physical, mental and moral

advantages accrued to us from our spontaneous play in boyhood and youth, for which we were blessed with ample opportunity.

But we have begun to perceive that many others are less fortunate. Many are not normal children in a favorable environment. With the crowding of population into our great cities in these days of industrial enterprise, there are multitudes of children and youth who may have the same healthy instincts that we had, but there is no opportunity to gratify them. There is chiefly the hard, dirty street and that makes anything but a healthful playground. So wise educators have started the splendid agitation for the establishment in every large town and city, of public places where the children may play freely under helpful guidance and sympathetic stimulation. The progress of the movement has been marvelous. Where 90 cities had them a year ago, 185 have them now. They have involved an expenditure for purchase, equipment and maintenance of a million dollars a month. "They range," so says an article in Charities and the Commons, "from the great parks and elaborate field houses of Chicago, to such modest beginnings as that made in Kalamazoo, Mich., where a fund of $200 for salaries, supplemented by gifts of lumber and metal and rope which the boys of the manual training classes turned into apparatus, gave a successful six weeks of supervised play in a school yard."

Other evidences of growth lie "in the establishment of two new companies to manufacture playground apparatus, and increases of from 100 per cent to 200 per cent in the sales of existing companies. Newspaper clippings on the subject, furnished by an agency, have increased from 83 to over 1,500 a month. Besides all this, there has been a widespread intensive growth in lengthening the hours during which playgrounds are open, and, in several cities, provision for night play by electric light for men and older boys."

It is the testimony of one student of the movement * that "a small park neighborhood recreation center such as those on the South Side of Chicago, can be expected to be co-incident with a twenty-eight and one-half per cent decrease of delinquency within a radius of one-half mile, conditions of the neighborhood in other respects remaining stable. To provide a probation district with adequate play facilities is co-incident with a reduction in delinquency of from twenty-eight per cent to seventy per cent, or forty-four per cent as an average. In addition, over a much larger area the small parks have a tendency to decrease delinquency seventeen per cent. It is clear, too, that

* Allen T. Burns in Charities and the Commons.

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besides preventing delinquency, the playground greatly increases the chances that a paroled boy will continue on good behavior."

This beneficent movement will not cease until the opportunity for such healthful recreation is placed within easy reach of all children. Its value is hardly less than that of the school; for it furnishes education at first-hand and in fundamentals, and no truant officers are needed to keep the children in this school.

WE present in this issue of EDUCATION a convincing article on the pernicious habit of cigarette smoking. In view of the facts and testimony cited, it would seem difficult to refute the contention of the author, and of the great mass of intelligent observers to the effect that the cigarette is a formidable foe to humanity. It makes its assault largely upon the young and inexperienced, those who are at the age that senses immediate impressions and thinks but little of remote consequences. This age is eminently an imitative one. The child or youth does or longs to do what he sees others older than himself doing. It seems manly to him to copy the example of his father or elder brother or the men of the street. As his means are usually limited, and as a cigar or pipe would nauseate him, he has recourse to the cheap and comparatively mild cigarette; and so he learns by easy steps the use of tobacco. If one could believe in a personal devil it would not be hard to attribute the cigarette to his diabolical agency. It is so subtle and plausible, and by such easy and alluring stages accomplishes an unsuspecting youth's undoing.

We can hold no other belief than that it is a most important duty of every parent and of every school teacher and officer, to work by every means within his power to prevent the young people in our homes and schools from forming this pernicious habit; or to induce them to break it off if it has already been formed. A great wave of temperance reform is sweeping over the world to-day. Some attribute this not without a good showing of probability, to the twenty years of careful instruction on the nature and evils of alcoholism, which we have now had in the public schools and the Sunday school. We may well be encouraged to attack the nicotine habit, notwithstanding the fact that its use is now unfortunately so general. It is hardly more common than was the use of rum a century ago We believe that the time will come when smoking will become as disreputable as rum drinking has now become among the most refined and spiritual minded people. It is strange that so many parents and teachers who are really concerned about this matter, and who are making strenuous efforts to break up the cigarette habit or to prevent its formation by their children, should so often overlook the most potential of all arguments, that of example. They wonder why their charges will smoke "when they have done *everything* in their power" to dissuade them. How often we hear this from fathers who seem honest in their blindness to the fact that the one most convincing thing of all yet remains to be done, namely, to themselves give up smoking.

Foreign Notes

INTERNATIONAL CORRESPONDENCE

The international correspondence of students illustrates the universal tendency toward the interchange of ideas and of material things that marks the present age. The thought was in the air, and here and there was practically applied at least, twenty years ago; but in the broad sense of an international system, its origin may be said to date from February, 1897, with the issue of a circular setting forth the purposes of the correspondence which was published simultaneously by the Revue Universitaire, Paris, and the Review of Reviews, London. The office of the latter (Mowbray House, Norfolk Street, Strand, W. C.) became at once the recognized directive center of the organization, although a Paris office was also opened at the time. The German branch was opened at Leipsic a little later. The enthusiastic pioneers of the work in the three countries were respectively, Paul Mieille, at present professor of modern languages at the lycée Tarbes, Editor Stead of the Review of Reviews, and Professor Martin Hartmann of Leipsic.

Until the autumn of 1903 the whole organization was managed from Mowbray House; but as a very large number of teachers in several countries had become interested, it was arranged with the approval of English teachers, to transfer the management to teachers themselves; an international list of teachers in favor of the scholars' correspondence is published in Modern Language Teaching, and can also be obtained separately from the Review office. This list is published twice a year. The German section is not included.

The names of pupils who desire German correspondence should be sent direct to Professor Hartmann, who makes the arrangements. To him also are sent particulars of parentage, and 2½d. for each name. One rule has been steadily adhered to. No matter from what source, French or English, the names come, they must be sent by teacher or parent, or be accompanied by their written permission. All sorts of harm was prophesied, but by the adoption of this simple rule no trouble of any kind has resulted. The first list sent in numbered about 30, the present average of fresh names is about two thousand a year.

The French-English correspondents are the most numerous; next in order come the French-German; Italy and the United States and Canada are also well represented.

THE COMPARATIVE STUDY OF EDUCATION

The details of a system of education are necessarily unintelligible to a student who does not understand the spirit and organization of the national life out of which the system has arisen. The uniformity of French schools, the inflexible discipline of the German, are often held up to us as models; but the endeavor to pattern after these models would be worse than futile in this country; it would be absurd. We can realize the truth of this statement by considering the criticisms that the French and German systems of education call forth in their respective countries. In his work entitled l' Education des classes moyennes et dirigeantes en Angleterre, Max Leclerc deplores the stagnation and artificial uniformity of the French lycées as contrasted with the free life and manly discipline of the English schools. "In the place," he says, "of forming citizens prepared for liberty, . . . we make rebels or beings without will." Dr. Rein has repeatedly warned his countrymen against the dangerous effects of those caste distinctions in education which tend to perpetuate despotic relations between rich and poor, educated and uneducated. To the adherents of this system, "it seems," he says, "most desirable to equip the children of the people with the tools necessary to make the worker skillful for all mechanical service and for the ever increasing production of wealth."

These are warnings especially needed by us at this time, when the demand for vocational training has come upon us with such force that we are in danger of losing sight of the far greater importance, in a republic, that education should form "citizens prepared for liberty."

The differences in national and social conditions, by which the development of popular education is chiefly determined, are easily discernible in the laws controlling school organization and administration in different countries; hence the knowledge of school legislation is, or at least ought to be, a part of the equipment of everyone who aims at educational leadership. One of the most valuable features of the annual reports of the Bureau of Education, is the material they afford for the pursuit of this comparative study.

MISCELLANEOUS NOTES

The summer courses of popular lectures instituted by Dr. Rein at the University of Jena in 1889, still draw enthusiastic audiences. In the summer of 1907, the attendance numbered 531, including many teachers of primary and secondary schools. During the past summer, 53 courses were given comprising each either six or twelve lectures.

Nine lectures out of twelve related to education. Dr. Rein, himself treated of the foundations of pedagogy and didactics, and Professor Guex, of the University of Lausanne, discussed the work of Swiss educators and scholastic institutions.

The University of Montevideo possesses a pedagogical library pertaining specially to secondary education; of 42 periodicals subscribed for by the library, 32 are French. A similar excess of French works is noticeable in the libraries of the several faculties; for instance, in the library of the faculty of law, 4,091 out of a total of 9,303 volumes reported in 1906, were by French authors. At the national library also, the works most in demand after those in the Spanish language are French. These facts indicate a preponderance of French influence that has existed not in Uruguay alone, but in all the Spanish American countries. In view of recent indications that this influence is declining, measures have been taken in France to form a society for promoting the relations between the French Universities and those of the Latin American countries. The presidency of the society has been accepted by M. Liard, Rector of the Paris University, the vice presidents are M. M. Levasseur and Appell.

A society has been formed at Ghent, Belgium, with the title *Les Amis de la Bibliothèque*, whose purpose is to increase, by every means in its power, the resources and the importance of the combined library of the city and the university.

According to recent statistics Belgium possesses, outside the great libraries of the state and the universities, 1,150 communal libraries with 2,600,000 volumes; 197 cantonal libraries for teachers with 124,000 volumes; 1,994 school libraries with 245,000 volumes; 23 libraries of agricultural clubs; 57 libraries pertaining to schools of domestic economy for girls; and 137 libraries belonging to technical schools for boys. A. T. S.

The Readers' Forum

[The editor wishes this department to be absolutely free and open for the expression of honest opinions, the asking of questions or the relation of experiences. He does not hold the magazine responsible for utterances on these pages; but asks that contributors shall bear in mind the real good of the cause. Please sign your communications exactly as you wish them to appear in print. The editor will add simply the name of the state from which the contribution comes.]

To the Editor of EDUCATION:—

I was much interested in the editorial in November EDUCATION on the public health, and the improvement that can be brought about through the agency of the schools. There is one important and much neglected aspect of the subject which you did not touch upon—the matter of ventilation. Pure air is as vitally necessary as pure food or pure water, yet how little attention is often given to securing it for the children in our schools!

Most school buildings of recent construction have been provided with improved ventilating systems, by which a current of fresh air, which has been warmed by passing over hot pipes, is forced into each room, the vitiated air passing out through openings near the ceiling. With such a system no windows need be opened, and the teacher need give no thought to the ventilating of the room. But we are not all of us fortunate enough to be in modern buildings, and in the old building the responsibility of securing an abundance of fresh air rests wholly with the teacher. The only recourse in such a case is to open the windows. This must be done judiciously, or we may let in so much air that the room quickly becomes cold, and it is necessary to close the windows to allow it to warm up again. A happy medium should be sought, in which, while the room is always warm enough, the air is continually changing and so always fresh. This result may usually be secured by lowering the windows from the top and opening the transom over the door. The children should not be allowed to throw up the windows when they come in warm from the romping and running of recess, or the natural results will follow—colds, sickness and absence from school.

The harmful effects of breathing vitiated air are many and varied. Not only does it put the body in a receptive condition for the ravages of headache, colds, tuberculosis and other diseases, but its effect is immediately seen in the recitation. The general attitude of the class becomes sluggish and unanimated, enthusiasm wanes, interest decreases, inattention is manifest, the hour becomes interminably long and the seats unbearably hard. The teacher becomes irritable and impatient and ends the day feeling "fagged out," and probably with a headache. It is needless to enlarge on the ultimate effect of such conditions on the scholarship of the class and on the teacher's success.

The number of deaths from tuberculosis is appalling. The recognized treatment of the disease is the fresh air cure, and the recognized preventive is likewise fresh air. "An ounce of prevention is worth a pound of cure." Let us as teachers do what we can to ward off this dread disease. By keeping the air of our schoolrooms fresh and sweet we may save some boy or girl a trip years hence to Colorado or the Adirondacks to "take the cure"; we will surely help to make the recitation a pleasure instead of a bore, and will increase our own vigor, enthusiasm and efficiency in our profession.

H. H. P.

Louisville, Ky.

To the Editor of EDUCATION:—

A plea for a more general recognition and utilization of the experience of the teacher.

The public expends hundreds of thousands of dollars yearly in salaries of teachers, and receives in return work and devotion to duty of inestimable value to the children and to the public; but the public does not receive from the experience of the teacher the value it should in the administration of school affairs, that is left to a few officials and experts. Now, it is not to be expected that a few people, be they ever so excellent, should be so superior as to be able to guide and direct all the multitudinous relations of so many teachers to their pupils and their work.

It is a fundamental principle of the profession that close relations between teacher and pupils furnish the best key to many a problem. The one who is handling the children knows better as a rule than any one else what those children can and should do, and yet there is in our school system no systematic, nominal consultation of teachers. Theorists, far removed from the children, are allowed to exploit their theories, and the schools are made the theatre of such constant changes that they are representative of a fickle public rather than conservative institutions standing for simple, firmly established principles.

If the great body of teachers of a city were resolved into faculties by grades or departments they would exercise a conservative balance, always open to the influence of the more progressive among themselves, as well as to the inspiration of thinkers and theorists outside their ranks. Only teachers of experience should be eligible to such faculties, but they should have a voice in the discussion of all important innovations in instruction and discipline.

In this way the teaching profession would become a real profession, the professional spirit would be stimulated, teachers would be spared

the indignity of receiving dictation from officials more inexperienced than themselves, our schools would be relieved of much crude, ill-digested experimentation, and the public would receive the full benefit of the experience of the teacher for which it so dearly pays.

MARY F. T.

Dorchester, Mass.

To the Editor of EDUCATION:—

This is by way of a complaint, also a call.

One school subject there is which the present writer finds, and has for years found, in possession of very nearly if not actually the first claim to attention in discussions of school improvement. This subject is the size of classes. It receives attention, but by far too little.

It makes the heathen rage—or, I mean, the mention of it causes the average authority on school matters to burst into impatience—spark to tinder. When you tell him that you have had acquaintance, as pupil, teacher, principal, student of schools, with classes of various sizes, and that you think you see that no real improvement can come into schools while classes have forty or more pupils, he hasn't listened to all this, but is saying (he who last said it to the writer was the editor of one of our oldest and best-known school journals): "Oh, well, but there's no use talking about it—matter of expense—taxpayers—no possibility. No use talking of that."

He makes you feel like a voice in the wilderness indeed. 'Tis discouraging; and pity 'tis, for you know, every real teacher knows, that smaller, and actually small classes have got to come. We must have school education, moral training, for instance. Real education, moral, mental or physical, cannot be given without more time to attend to each scholar as well as to conduct group instruction with less machinery and more humanity. Teachers must have far more opportunity for exercise of patience, tact, for study of pupils, acquaintance with each, and the accomplishment of such change in him as all but the rarest child needs to have made by school. This good work, indispensable work, seen here and there in small classes, it would be silly to expect ever to see in large classes.

Is it "no use to talk of it"? Is it, for any reason, better not to talk about it now? I cannot find any such fact, any such reason. The matter of expense, the taxpayers, are big, formidable difficulties—the bigger they are, the bigger the need for us to talk of our discoveries relating to necessary reduction of classes—is not that true? and to do it without delay? As to the rôle of voice in the wilderness, have you any special objection to that? Haven't you noticed that voices in the

wilderness—if they have excellent reason for calling, and keep on loudly, are sure to reach the right ears, and are then in the van of hosts in victory? It's not without its uses, that voice in the wilderness.

For that matter, a few spots on the United States map are not quite a wilderness for this voice: Boston has heeded to some extent a commission's recommendation for a moderate reduction (insufficient) of elementary classes. Dr. Eliot's words upon the subject have been such as to make him a perfectly satisfactory leader.

Hence, this note to the Forum, though complaining of the policy of silence on the part of school authorities in general the country over, whines not at all at the part assigned for the voice from the school; on the contrary, the note is mainly concerned with suggesting that statements, patient, positive, reiterated, should be going out from school people to the effect that large size of classes is prohibiting good schooling.

S. P. P.

Dundee, N. Y.

Book Notices

High School Algebra. By Professor J. H. Tanner. The author of an elementary text-book in mathematics must solve the difficult problem of presenting his subject in a way that will place it within the grasp of young and untrained minds; and which, on the other hand, will be sufficiently rigorous to develop correct reasoning powers. Every teacher has on his shelves excellent examples of failure in either of these directions. In his latest work, a High School Algebra, Professor Tanner seems to have been particularly happy in finding the narrow path between the two dangers.

On the pedagogical side, the book is a distinct improvement upon the Elementary Algebra, by the same author. It covers practically the same ground, but it is much simpler and more teachable than the earlier book, though hardly less rigorous. The book is singularly free from those careless statements whose falsity must later, with great difficulty, be demonstrated to the much-abused mind of the young student. Simplicity seems to have been achieved by the process of telling "the truth," and "nothing but the truth," but not necessarily "the whole truth," when the whole truth is too big for the immature mind to grasp.

The author has used a much-criticised and certainly insufficient definition of multiplication (¶ 7), but it is doubtful whether there is a thoroughly rigorous definition which is at the same time sufficiently simple for an elementary algebra. If the author had presented this idea of multiplication (not giving it as a formal definition), and had pointed out its insufficiency in a footnote, adverse criticism would have been forestalled. The definition, as given, does not quite measure up to the very high standard of rigor which the author has maintained throughout the rest of the book—as, for instance, in the treatment of practical and negative exponents (¶¶ 171–175).

The proof that there can never be a system of more independent simultaneous equations than there are unknown quantities in these equations (¶ 107) does not seem to connect as closely as might be desired with the definition of independent quotations (¶ 100).

On the whole, one must read the book very closely in order to find anything to which exception might be taken, while its strong points are obvious to the most casual reader. The author's broad knowledge of his subject and his keen faculty of discrimination have produced sharp definitions and lucid explanations which will prove helpful to the student and a delight to the teacher. One need mention only a few of the many good features which attract attention.

The difference between conditional and identical equations is brought out very clearly (¶ 44). A careful distinction is maintained throughout the book between numerical and algebraic quantities (as in ¶ 82). Equivalent equations are defined, and the danger of introducing extraneous roots is made apparent very early in the solution of equations (¶ 95). The process of translating ordinary language into algebraic equations is emphasized, and the thorough drill offered at this point will help many a teacher over a hard place.

In an excellent chapter on graphs, the graph of an equation in two variables is explained; the relation between the solutions of simultaneous equations and

the intersections of their graphs is shown; and then the use of the graph of $y = f(x)$ in the solution of the equation $f(x) = 0$ becomes apparent.

In the chapter on ratio, proportion and variation the author has very wisely devoted less time to the rather useless amusement of juggling proportions into ingenious forms, and has given more attention to the very useful and much neglected subject of variation.

The subject of mathematical induction is treated simply but rigorously, and its wide range of usefulness is brought out in a way that may open the eyes of teachers as well as those of students.

The arrangement of the book is such as to offer a course of great flexibility as to the length of time to be consumed and the choice of subjects to be studied. The volume is well bound, attractive in appearance, and free from typographical errors. Its obvious merits will hardly fail to win appreciation from discriminating teachers. American Book Company. Price, $1.00.

Essentials of Woodworking. By Ira S. Griffith, director of Manual Training, Oak Park, Ill. This is the best text-book on this subject we have seen. It deals with fundamental facts and presents them most interestingly and with abundant illustrations. The subject has a steadily enlarging place in the school curriculum, and this volume will be most useful. The Manual Arts Press, Peoria, Ill. Price, $1.25.

Part Songs for Girls' Voices. By John B. Shirley. This book contains duets, trios, quartets, and choruses suitable for the seventh and eight grades of elementary schools and for girls' high schools, normal schools and seminaries, also for glee clubs and women's choral societies. It is a rich and varied collection of good songs, arranged to suit girls' and women's voices, a collection greatly needed and now happily furnished. In the arrangement of the parts for the old English glees and German part songs the original harmonies have been retained, but in the folk songs the melodies only have been retained, the harmonies being such as will add a new charm to the old songs. American Book Company.

The Teacher. By George Herbert Palmer and Alice Freeman Palmer. This is a volume of nearly four hundred pages, in which are gathered some inspiring and instructive essays and addresses on education by these two gifted teachers. In the preface Professor Palmer refers to "questions about which we teachers, eager about our immeasurable art . . . never cease to wonder." It is just this exalted conception of the art of teaching, of which he is a recognized master, that gives to his utterances an authority, an inspiration, a life-imparting quality, which makes every address and every written page which he is pleased to give to the public eagerly sought after and attentively received. The present volume is divided into three parts: Part I treating of "Problems of School and College," in one of the chapters of which the author describes the qualities of the ideal teacher; Part II, Harvard Papers; and Part III, four papers by the late Alice Freeman Palmer. The same charm of style pervades this volume which has made his Life of Alice Freeman Palmer one of the most popular and widely read books of the year. Houghton Mifflin Company. Price, postpaid, $1.50.

Administration of Public Education in the United States. By Samuel T. Dutton and David Snedden. The authors are professors respectively of school administration and educational administration in Columbia University, and are therefore well qualified to deal with this vast and increasingly important subject of school administration. School systems are now so vast in extent, so expensive in operation, so complex in organization, and so important as factors in the body politic that it is greatly wise that those deeply studying this subject should bring their expositions and conclusions to the attention of those who are and ought to be concerned in it. The evolution of public education in this country has been a significant feature in our national life. Wanting a national control and system, the various states have built up their systems in harmony with their supposed needs and according to their lights. It thus follows that there is a wide divergence among the states as to the forms of administrations, and hence varying results follow. Some states have constructed workable, practical systems, others are yet encumbered with archaic and cumbrous systems, retained because of sentiment and respect for what is ancient and substantial. It is in the newer states that the organizations are most simply geared; the older states holding fast to what was the initial effort in this direction. In this splendid work we have a study of conditions, an exposition of systems, a discussion of the aims and purposes of educational organizations that the school authorities have long needed. Their illuminating study serves to call attention to conditions that ought to be considered intolerable. It is not the purpose of the authors to descant on the evils of administration, but rather to set forth facts relating to it, collecting, arranging, classifying these acutely and logically. The contribution is most timely and valuable. To all interested in the cause of education and its betterment by reason of right administration, this work will prove to be of inestimable worth. The Macmillan Company. Price, $1.75.

Progressive Problems in Physics. By Fred R. Miller, of the Boston English High School. Nearly two thousand problems in physics are here given and are arranged progressively, this being the main feature of the book. The problems cover every phase of the work in physics. They bear directly on the subject of physics, the author making special effort to cut out all needless mathematical work. They are, as far as it was possible to make them, practical, data from reliable scientific and commercial sources being used. The appendix contains a number of college entrance examination papers. Boston: D. C. Heath & Co. Price, 60 cents net.

Graded Spellers. By Frank E. Spaulding and William D. Miller. This series consists of seven books, each of which contains ample work for one year; throughout the series there is careful and progressive gradation as advance is made to each succeeding part. Of the twelve thousand words in the books nearly two thousand of the simpler ones are arranged and treated, according to sound as well as meaning. The words are presented at the same time in columns and in use, all most carefully graded, both in respect to the words and the thought, and presented in a way to interest and instruct. The pupil is made conscious of the meaning and the use of the word as he learns to spell it. It is a most satisfactory and sane series of spellers. Ginn & Co. Price, 18 cents each.

The Blodgett Fourth Reader; Wade and Sylvester Fifth Reader; Buckwalter Fourth Reader. These readers are parts of series in the process of publication, and serve to indicate the character and purpose of the series. The earlier books of the series to which each belongs have been noticed in these columns when issued. It remains to say that the books before us fully justify our words of commendation of the preceding numbers, that they are excellent compilations, containing only the very best of literature, the selections being arranged and graded with exceeding care and good judgment. A new spirit seems to dominate the later readers; the stock selections that have done duty for, lo, these many years, have given place to extracts and stories and poems that are intense with life, and vivid with the human element. They appeal to the youthful reader because they touch him on the human side. High sounding platitudes, ethical disquisitions, and ornate abstractions have given place to anecdote, story and play wherein are given interest and incident, wherefrom are drawn moral lessons, and whereby is fostered a love for good literature. The new reading books mean much to the new readers of to-day; their influence in forming a correct taste for what is elevating and true and pure must be potential. Ginn & Co.

Teaching a District School. By John Wirt Dinsmore. This is a book for young teachers in district schools; its special purpose is to enable the country school teacher to meet his many and peculiar needs—needs that are quite unlike those of the city or graded school teacher. The book deals with every phase of the work and every difficulty which confront the country teacher. Each problem is treated in a clear, practical manner, and discussed in plain, simple language. There is no "fine writing" in the book, it goes directly to the heart of the matter and gives, by plain precept and pertinent example, just the information of which the young teacher stands in need. The problems discussed and adjusted are not imaginary ones, but are such as face every teacher in a district school. The writer speaks with authority. He was a country teacher, and the advice he gives represents wide experience, long research and patient investigation. Since Page's Theory and Practice, no work for the country teacher is more valuable than this; it brings direct, immediate, suggestive and usable information to a class of workers that "have been, and still are, the greatest single power for good in the nation." American Book Company. Price, $1.00.

How to Dress a Doll. By Mary H. Morgan. This unique little volume will be a special delight to the child fortunate enough to possess it. "The author is an experienced teacher of sewing, and knows every difficulty that besets little needlewomen." She makes clear to even the youngest reader, the easiest and best method of making Miss Dolly a complete wardrobe. The book is not only a guide to doll dressmaking, but a manual of plain sewing. Its opening chapters are full of useful hints in regard to sewing in general. "These preliminary instructions form a carefully graded course which leads up to the actual making of garments." The book is admirably adapted for use in the sewing class in school, and the teacher will find it a most valuable help. Henry Altemus Company, Philadelphia, Pa. Illuminated boards, 50 cents.

The Technic of English. By Oscar Schleif. Here we have an entirely original treatise on language, worked out with an elaborateness that is gratifying and impelling with its logic and force. Mr. Schleif has made a deep study of the structure of our language, has discovered wherein lies its weakness in expression, and has worked out a novel scheme whereby what is loose in construction, weak in expression, wasteful in words and bewildering in thought may be avoided and remedied. In developing his system Mr. Schleif has delved deep into the basic forms of expressions, and has by a wealth of illustrations shown how these are faulty and dissipating in power. His plan to employ words in sentences so as to best express one's thought, and convey, without bewildering the reader, directly and cogently this thought, is extremely interesting, plainly practical and easily adopted. The little treatise is a veritable contribution to the study of our language, and merits the careful consideration of all interested in clear thinking and clear expression. The book is published by the author, at 363 Winthrop Street, Brooklyn, N. Y. Price, 75 cents.

Specimens of Exposition and Argument. By Milton Percival and R. A. Jelliffe. There are thirty-six extracts in the book, each most carefully selected to illustrate some phase of exposition or argument. The selections are varied in length, to admit of different modes of treatment. Many of the articles are the work of practical men of affairs rather than of men of letters. As an aid to students in rhetoric and composition the book has distinct value, bringing as it does the very best in literature to illustrate the subject-matter of the study. The Macmillan Company.

Physics for Secondary Schools. By Charles F. Adams. Mr. Adams is head of the department of physics in the Detroit Central High School, and has made a constant study of the difficulties which beset young pupils in their attempts to comprehend the principles of physics. His book is the outgrowth of many years' experience in teaching physics to boys and girls, hence it is a teachable book in that the subject is presented with such simplicity and clearness of expression and fullness of illustration that the average secondary school pupil will readily comprehend it. The language is clear and simple, the problems unusually numerous, and the illustrations many and illuminating. The work is thoroughly up-to-date, the recent advances in electricity receiving full recognition. American Book Company. Price, $1.20.

Periodical Notes

Readers of *The Century* will be pleased to find in its January number, "The Reminiscences of Augustus Saint-Gaudens, edited by his son Homer Saint-Gaudens." Pictures from drawings and photographs help to make these ably edited reminiscences intensely interesting.—The January issue of *Lippincott's Magazine* contains an especially good article by George L. Knapp, on the life and literary work of that wonderfully gifted but morbid genius, Edgar Allan Poe.—Keen interest will be taken in an article to be found in the January *Suburban Life* on the destruction of our forests by fire. Mr. Gifford Pinchot, chief of the United States forest service, says that the fires of 1908 have been the worst he has ever known, and represent a serious drain on our timber supply.—The *Harvard Quarterly Journal of Economics* is alive with timely contributions on questions of political economy. Mr. R. F. Foerster gives a statistical survey of Italian emigration, in which he points out the extraordinary extent of the "Bird of passage" movement to and from Italy.—In the January *Everybody's Magazine* we find the third installment of "The Woman's Invasion." This discusses the shopgirl and her relation to the rest of the female wage earners.—The thoughtful educator will read with interest what President Pritchett writes in the December *Atlantic Monthly* on the "Organization of Higher Education."—The New Year's number of *The Delineator* has many well chosen contributions, and among them appears the third article on "What is the Matter with the Public Schools?"